

The Iron Age

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Prismatic Gunpowder.

Engineering of recent date contains an interesting article on "Prismatic Gunpowder," together with an engraving, which we reproduce, of a press for its manufacture. Concerning it our contemporary says:

The advances made within the last two or three years in the manufacture of gunpowder for heavy ordnance have been very great, and these advances have been due in a great measure to the development of more perfect mechanical devices for the necessary processes. The machine shown was constructed by Messrs. Taylor & Challen, of Birmingham, England, for the Government, and is similar in general design to some earlier machinery built by the same firm. There are, however, many improvements in the details. The cylinders are larger in diameter, and consequently the machine is more powerful. In it 64 hexagonal prisms of the size adopted in the service, with a hole through the middle, are made at each stroke, the pressure exerted on each prism being increased in proportion to the additional power of the machine. The ma-

trate, and which Messrs. Taylor & Challen have recently completed to the order of Messrs. Curtis & Harvey. This eminent firm of gunpowder manufacturers have works at Hounslow, Bedford and Tunbridge, and also in Scotland and in South Wales. It was at the Tunbridge works that the new plant was erected, and it was there that we had an opportunity lately of seeing it in operation.

We cannot help remarking, by the way, that there is no industry which appears to be carried on in so peaceable, not to say pastoral, a manner as the manufacture of gunpowder. At Tunbridge the "factory," which is a good specimen of the class, consists of a beautifully wooded plantation, through the center of which a pleasant stream meanders. At intervals on the banks of this stream are situated picturesque wooden buildings, each with a water-wheel revolving at its side. The main impression one receives in walking through this pleasant scene is that of peaceful solitude, for it is seldom that the dusky figures of the operatives emerge from their sylvan retreats, and the only sound heard is the murmur of

are required to work each machine—one to manipulate the valves and two to attend to the charger and remove the prisms of powder as they are produced. The operations are as follows: The various conical hoppers A, which are contained in the carriage of the charger shown on the left of the engraving, are filled with loose-grain powder. The charger is then run forward into the press and locked there. By the movement of two levers, which are shown in position in our engraving, the powder is made to fall from the hoppers into the charging tubes B, 64 in number. These are set to hold the required quantity of powder, and great care has to be taken to fill them completely, as exact uniformity is one of the most necessary conditions of getting a powder that will pass the very severe tests now demanded by the Government authorities. By the movement of a lever the charging tubes are carried over 64 corresponding phosphor-bronze bushes in the bush block C. The charges of powder then fall into these bushes, and the charger is withdrawn from the press. The operator at the valves then allows water at pressure to flow in above the

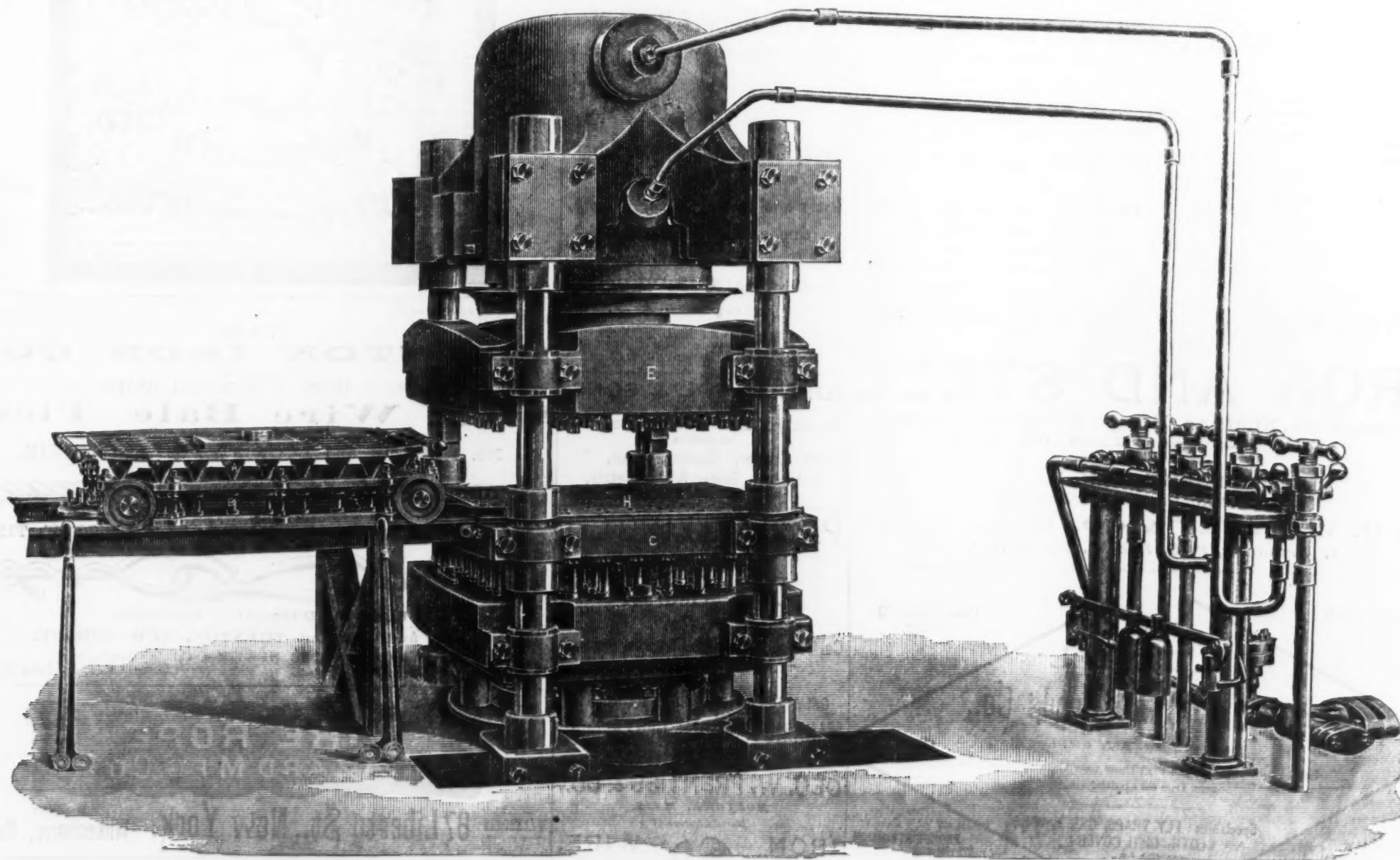
each bush. These rods stand nearly level with the top of the bush block and are firmly held by the plate H, so that the prisms are pressed with these rods in the middle. When the prisms are ejected from the bushes they are stripped from the rods. It is indispensable that all the prisms produced should be of exactly one size, and should contain precisely similar quantities of powder. Their uniformity is tested by means of immersing them in a bath of mercury, the readings being taken off on a very accurately marked scale. In working the machines a separate valve is used for each operation, and an ingenious automatic arrangement has been devised to prevent the attendant turning a wrong valve, so to bring down the top ram when the charger is in the machine. There is also a safety arrangement to prevent damage to the machine should a pipe burst.

We have referred to the necessity that exists for producing all the prisms of a definite and uniform size and specific gravity—in other words, that there should be exactly the same amount of gunpowder, compressed to the same degree, in each

weighing a total weight of 714 pounds. The mean of the deviations of the muzzle velocities of the several rounds, from the mean velocity of the five rounds, shall not exceed 10 feet.

Pressure.—The mean pressure indicated on firing, as above, by the compression of copper cylinders adjusted in crusher gauges is not to be greater in any one round than 16½ tons on the square inch, and the mean of all the pressures shall not exceed 16 tons.

These very stringent tests are perhaps the best comment we could have on the great strides the art of making explosives has made within the last few years. It is not so very long since—well within the memory of many living powder-makers—that gunpowder was gunpowder, without any very striking difference for whatever purpose it might be required. The "velocity" tests show a wonderful departure from those simple times, and, although the restrictions laid down in this respect may seem unnecessarily severe and even arbitrary at first glance, on further inquiry we believe there will be found to be sound reason at the



HYDRAULIC PRESS FOR THE MANUFACTURE OF PRISMATIC GUNPOWDER.

chine is adapted for making prisms of either black or brown powder. The latter is more generally used for large ordnance, its slower combustion giving a lower initial pressure, and therefore less strain on the breech of the gun. Another great advantage the brown powder possesses is that it gives off a very much smaller volume of smoke, and this quickly disperses—one of the most important considerations in warlike operations.

The hydraulic plant for making the prisms necessitates a considerable outlay which private manufacturers in England were reluctant to incur until the form of powder likely to be required was definitely settled by the Government authorities. In the meantime the resources of the Royal Gunpowder Factory at Waltham Abbey were insufficient to meet the demands of the War Department for prismatic "cocoon" powder, and, private manufacturers in England not having the necessary appliances for its manufacture, large contracts were entered into with German manufacturers. In the meantime one of our leading firms engaged in gunpowder manufacture had been experimenting with a new form of prismatic powder, and, having brought their researches to a satisfactory conclusion, decided to erect a thoroughly efficient plant of the most approved description, in order to manufacture what is now officially known as "brown X prismatic gunpowder." The result is the hydraulic press which we illus-

trate, and which Messrs. Taylor & Challen have recently completed to the order of Messrs. Curtis & Harvey. This eminent firm of gunpowder manufacturers have works at Hounslow, Bedford and Tunbridge, and also in Scotland and in South Wales. It was at the Tunbridge works that the new plant was erected, and it was there that we had an opportunity lately of seeing it in operation.

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the water as it turns the slow wheel. Sometimes, it is true, there is a striking contrast to this picture of Arcadian simplicity. In spite of all precautions, occasionally one of the picturesque buildings will, to use the expressive phrase of powder-makers, "go up." Thanks, however, to good luck, and probably still more to good management, Tunbridge has had few of these unpleasant interludes in its usually monotonous existence.

To return, however, to the new plant, we find that two prismatic machines were subsequently ordered by Messrs. Curtis & Harvey from Messrs. Taylor & Challen, together with the necessary hydraulic gear for driving them, consisting of an accumulator, four sets of three-throw pumps, a pair of steam engines with Cornish boilers, and all the necessary gear and fittings. These are all of good and substantial make, and very neatly arranged, but do not call for any lengthened comment. The accumulator is weighted with cast-iron segments which may readily be put on or removed should the pressure require to be varied. When fully weighted the pressure is 1050 pounds per square inch. The engines are of the ordinary type, and the exhaust steam passes through a feed-water heater and purifier, after which a portion works an exhaust steam injector, while the remainder is used for heating the houses containing the engines and pumps and the building in which the presses are placed. Three men

top ram, which forces down the plunger block. Attached to this are 64 phosphor-bronze hexagonal plungers; these enter the bushes, which they fit with great accuracy. At the same time that the top ram is brought down the bottom ram is caused to ascend. To the latter is attached the plunger block E, to which is attached 64 hexagonal plungers that also correspond to and accurately fit the bushes in the bush block. In this way the charges of powder contained in the bushes are pressed between the plungers. Under ordinary conditions of atmosphere the pressure is kept on for about 10 to 20 seconds, the time varying with the different descriptions of powder. The top plungers are then lifted and the lower plungers are raised to eject the prisms from the bushes. The prisms are pushed off, clear of the press, on to a wooden tray to be removed by an attendant. The bottom ram is lowered again into its first position and the charger is run into the press again ready for the next operation.

In this way each machine will make 64 prisms every two minutes. It is necessary, however, that each prism should have a hole through its center in a line with its axis. These holes are formed in the following manner: The bottom plungers have holes bored through, which are of the same diameter as the holes required in the prisms. This allows a number of phosphor-bronze rods, one to each prism, to pass through the plungers and then through the powder in

specimen. It is this point that has principally engrossed the attention of the makers of the apparatus, and the result is a beautifully accurate piece of mechanism. It has only been by the greatest care in finishing to gauge and in the adjustment of parts that the success undoubtedly achieved by this machinery has been attained. The tests of powder such as this now required by the War Office are of the most severe description, as may be gathered from the following details, which represent some of the principal points in the official specification of tests:

Size of Prisms.—The prisms to be of the following dimensions: Height, 24.8 ± 0.2 mm.; diameter (over sides), 34.7 mm. ± 0.2 mm. The hole to be 10 mm. in diameter. The prisms to be gauged as follows: 219 prisms should fit easily in a metal frame, 705 mm. long, 352 mm. wide, and 25.3 mm. high, and should offer no resistance to a straight edge drawn over the top of the frame.

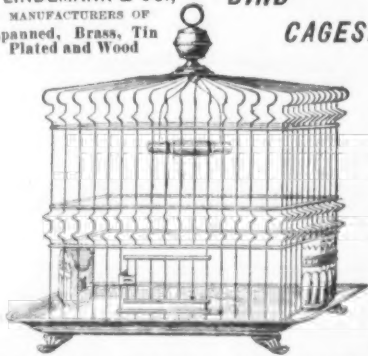
Density.—The absolute density of the finished powder must not be less than 1.80. **Moisture.**—The finished powder must not contain more than 2.2 per cent., nor less than 1.7 per cent.

Velocity.—A charge of 295 pounds of powder in the 12-inch breech-loading gun (of a gravimetric density of $\frac{33.2}{0.835}$), shall give a mean muzzle velocity for the five rounds of not less than 1900 feet per second, nor more than 1940 feet per second, to a proof cylinder

bottom of them; and it is only by their strict observance that the accurate practice necessary in modern warfare can be insured.

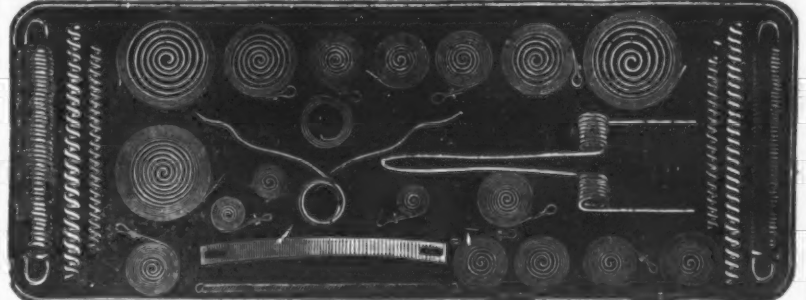
A very interesting application of the electric incandescent light to mining operations recently took place at Lord Vernon's Poynton and Worth Colliery, near Stockport. It appears that the lower pump-rod of the main pumping shaft of the Lady Pit, by which the pits are drained, broke, leaving the bucket in the bottom, some 600 feet below, and submerged in water. To remedy the rupture divers were employed from the firm of Siebe, Gorman & Co., the well-known submarine engineers of Westminster, and their operations were carried on by the light of a Siebe diver's electric lantern worked by Thame's primary battery. The barrel of the shaft was disjoined and pulled up, and the pump-rod was repaired by this means. The Siebe lantern is a strong appliance and weighs some 83 pounds out of water. It consists of an iron cover permitting the conductors to pass inside to a cluster of four incandescent lamps, the light of which is reflected downward by a white reflector in the roof. A stout glass globe encircles these, and is protected from injury by iron prongs around it. Fifteen cells of Thame's primary battery were employed, and the total light obtained was about 80 candles, a luminous sphere of some 6 feet in radius being obtained under water.

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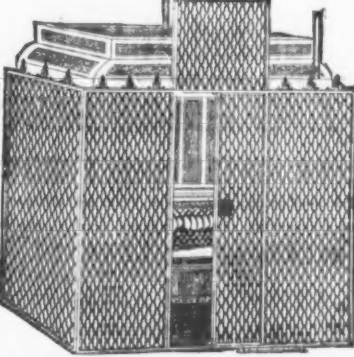
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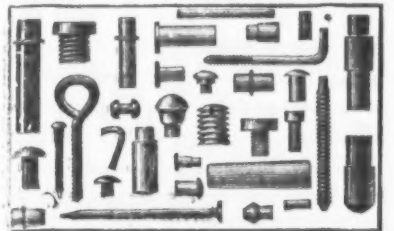
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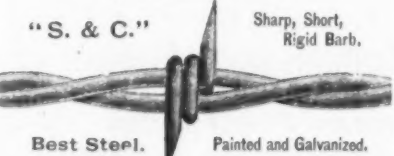
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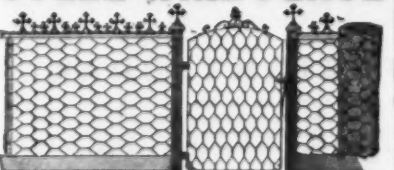


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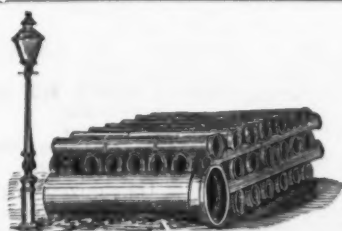
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Spruce for Making Pulp.

A very large quantity of logs, both spruce and poplar, are now coming into use for grinding up as pulp for newspaper-work, cardboards and the like. When the first paper was made from wood pulp it was thought that poplar was the best and perhaps the only wood which could be used, but during the last few years it has been found that spruce wood made better and stronger pulp than poplar. Poplar will always be a much cheaper wood than spruce, because it grows very rapidly and has but few economical uses outside of the grinding up for pulp and the making of excelsior. Poplar never grows very large, but grows quite rapidly. A growth of poplar 16 to 18 inches through at the butt is considered very good growth, although some few specimens may be found of larger growth. After reaching that size in the average New England soils it seems to lose vitality and finally die. Those who cut poplar for pulp wood out down some very small trees, even down to a few inches in diameter. It is commonly cut into 4-foot lengths and sold by the cord, New Hampshire lots bringing from \$4 to \$5 per cord, probably averaging about \$4 per cord. Spruce logs cut up in 4 foot lengths are selling at the same time at from \$6 to \$6 50 per cord, delivered on the cars in various parts of New Hampshire.

It is claimed by some that spruce wood does not make so white pulp as poplar, and that the chemicals for bleaching are somewhat more expensive in the case of the spruce, but it is much sought for on account of the strength of its fiber and the better character of the wood. Lumbermen are quite ready to get out a certain percentage of spruce for the wood-pulp grinders, because they will take some seamy trees, where reasonably clear and of good growth. Such seamy trees are not profitable for sawing into any kind of lumber. There is a great difference in the color of spruce, that which is very white being much more desirable for the wood pulp people. Trees of the same variety seem to differ in whiteness or color, probably owing to the soil upon which they grow. Hence some lots are really worth a dollar a cord more to manufacture into wood pulp than other lots, while both might be worth equal prices for manufacturing into ordinary lumber. The pulp business is destined to grow more rapidly in the future even than in the past, for the users of pulp and paper and cardboard are becoming multiplied every year. The inventive genius of the Yankee discovers many new applications for a product like this almost every day, and the time is rapidly drawing near when a large quantity of spruce and poplar will be required to meet the demands of wood-pulp grinders.

Aurora Sounds.

In March, 1885, Sophus Tromholt dispatched some thousand circulars to all parts of Norway, containing different queries regarding the aurora, and among them also the following: "Have you or your acquaintances ever heard any sound during aurora, and in this case when and in what manner?" Up to September 16th he had received answers to these queries from 144 persons. Of these not less than 92, or 64 per cent., believe in the existence of the aurora sound and 53 (36 per cent.) states that they have heard it themselves, while the other 39 cite testimonials from other people; only 21 (15 per cent.) declare that they have never heard the sound and know nothing about it, and the other 31 (22 per cent.) have not noticed the query at all. There are thus 92 affirmations against 21 negations. The sound is variously described in these answers as sizzling, creaking, whizzing, rustling, crackling, hissing, whispering, rushing, buzzing, rippling, roaring, din, breezy, whipping, fanning, clashing, flapping, sweeping, &c.

Experiments with Water Jets.

At a recent meeting of the Berlin Physical Society Herr C. Baur described experiments he had made with water jets, which, issuing from a conically-pointed tube in parabolic curves, were acted upon by certain musical tones, so that at some distance from the mouth of the tube they showed a rotation, and that the jet, though broken up into drops behind the apex of the parabola, contracted into a continuous jet. The thinner was the jet the higher must be the tone toward which it was sensitive; the thicker the jet the deeper the tone. Herr Baur had instituted further experiments with water jets, which he caused to fall on plates. Under certain circumstances there thus arose quite pure tones, which continued as long as the jet hit on the plate. The experiments succeeded best with a Weissmann apparatus, when the jet issued under a pressure of 10 cm. water from a lateral opening of 4 mm. in diameter without tube. Thin window-glass plates and metal plates, which, resting on pedestals, had free movement of vibration, were best suited as receiving plates. The tone was most certain of occurrence when the node lines of the plates were supported. In the jet itself appeared nodes and ventral segments at some distance from the opening. They were most distinct and regular at its middle; away in the direction of the plates they again became indistinct. If the metal plate and the water, acidified beforehand, were connected with a galvanic cell and a telephone, then no interruption of the current could be recognized during the time of the sounding. The contact of the water jet with the plate must therefore necessarily be continuous. Herr Baur deemed this mode of excitation very well adapted to the purpose of studying the vibrations of plates.

A New Safety Cartridge for Coal Mines.

A new safety cartridge for use in mines where it is not safe to blast with gunpowder has lately been introduced in Germany by Dr. Kosmann, of Breslau. Its action depends upon the rapid liberation in the bore-hole of a large quantity of hydrogen gas, the pressure resulting from which forces the coal or rock asunder. The hydrogen is

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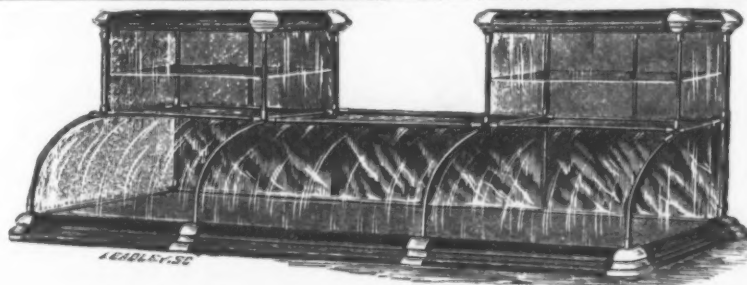
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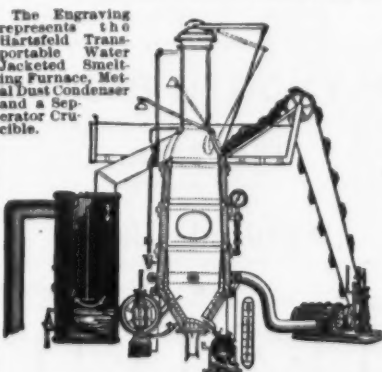
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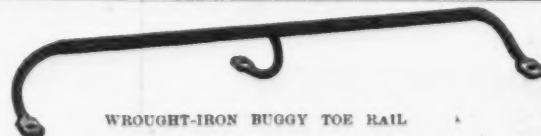


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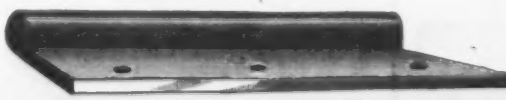
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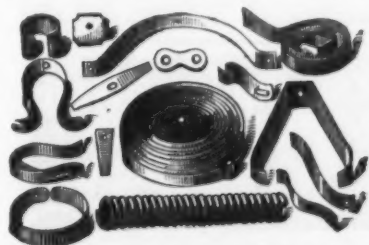
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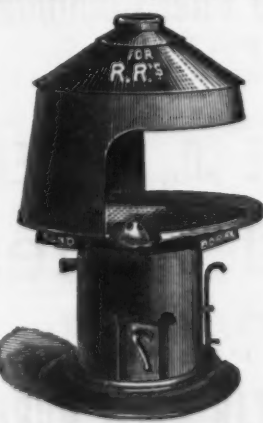
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Fig. 120.



Fig. 365.

Fig. 200.



Fig. 70.

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liberated by means of the action of sulphuric acid upon very finely divided metallic zinc. For this purpose Dr. Kosmann takes the bluish gray powder which forms in the condensers of zinc distillation furnaces, and which consists of metallic zinc which has not been condensed to the liquid form, but results as a powder, or as a more or less spongy mass. There is a small amount of oxide mixed with it, but for all practical purposes it may be considered as a metallic zinc. The cartridge consists of a glass cylinder, narrowing to a neck, and being also contracted at a point below the neck, so that the cylinder is divided into two portions, communicating through a contraction whose opening is 8 mm. to 10 mm. The contraction is so placed that the two parts of the cylinder are to one another in cubic capacity as one to four, the smaller part being near the neck of the cylinder. The lower or larger division is filled with sulphuric acid obtained by diluting the chamber acid of commerce with an equal volume of water. The contraction is then closed with a stopper of rubber or cork, and in this condition the cylinder is handed over to the miner. The hole being bored ready in order to close any cracks or cavities through which gas could escape. The upper part of the glass cylinder is now charged with the zinc powder, and an iron rod is laid in, passing through the zinc and resting upon the stopper in the contracted part of the cylinder. The neck of the cylinder is then tightly plugged with clay, and it is laid in the hole, which is then also well tamped with clay, the iron rod passing through both these clay stoppings and projecting some little distance beyond. In order to "fire the shot" the miner strikes the iron rod with a hammer, so as to drive in the stopper in the contracted part of the cylinder or to break the glass at that part. In either case the acid at once runs in among the zinc powder, and a very rapid evolution of hydrogen takes place. The iron rod is not uniform in thickness, but conical, being thicker toward the outside, and this increase of thickness is considerable, so that when the rod is driven in it keeps tight in the clay stoppings and prevents any escape of gas. The inventor gives figures to show that a cartridge 180 mm. long and 25 mm. in diameter, taking a charge of 50 c. cm. of acid and 12 gram. of the zinc powder, will give rise to an evolution of gas equal to 3.37 c. m. at ordinary barometric pressure, and that the compression of this volume of gas into a space of 90 c. cm. means a pressure exerted on the sides of the hole equal to some 37,000 atmospheres. The pressure is obtained rapidly, but not so rapidly as to in any way endanger the man who drives in the rod. He has plenty of time to get away before any coal or rock comes down. It does not appear that these cartridges have yet had any thorough trial in practice, but much is expected of them, and the making of the cylinders has been intrusted to a large firm who will insure their being good and uniform. The cost of each "shot" will be 1d. to 3/4d., according to size of the cylinder and charges used.

The Black Process for Reproducing Drawings.

A black process which will compete for favor with the well-known blue process familiar to engineers and others is given in the *Photocopy* of Mr. A. Fisch. The process is technically known as "heliography," is simple, easy and inexpensive, while the prints are ink-black, and are made from drawings or positives and negatives. We owe this process to Mr. Poitevin, but it has been slightly improved. For the sensitizing solution dissolve separately:

1. Gum arabic	17 ounces	13 drams.
Water	13 drams.	10 ounces.
2. Tartaric acid	6 ounces	6 drams.
Water	6 ounces	6 drams.
3. Persulphate of iron	8 drams.	6 ounces.
Water	6 ounces	6 drams.

The third solution is poured into the second, well agitated, and then these two solutions united are added to the first, continually stirring. When the mixture is complete add slowly, still stirring, 100 c. cm. (3 fluid ounces) of liquid acid perchloride of iron at 45° Baumé. Filter into a bottle and keep away from the light. It keeps well for a very long time. In sensitizing the paper it becomes necessary to select a paper that is very strong, well sized and as little porous as possible. By means of a large brush or sponge apply the sensitizing liquid very equally in very thin and smooth coats; then dry as rapidly as possible with heat, without exceeding, however, a temperature of 55° C. (131° F.) The paper should dry in obscurity, and be kept away from light and dampness; notwithstanding all these precautions it does not keep well long, and if it is desired to act with some certainty it is better to have a stock to last only a fortnight. Freshly prepared it is better than a few days afterward. It should be of a yellow color.

The tracing, made with very black ink, is placed in the printing frame, the drawing in direct contact with the plate; then place over it the sensitized paper, the prepared side in contact with the back of the tracing. There is no necessity to make use of photo-metric bands, as the progress of insolation is sufficiently seen on the sensitized paper during the exposure. From yellow that it was it should become perfectly white in the clear portions—that is to say, upon which there is no drawing of the transfer or positive cliché that is to be copied; this is ascertained by raising from time to time the shutter of the frame. The exposure lasts from 10 to 12 minutes in the sun; in summer less, in winter more. When the exposure is ended remove the print from the frame, and it should show a yellow drawing upon a white ground. If in the sensitizing bath a few cubic centimeters of a rather highly concentrated solution of sulpho-cyanide of potassium have been added, this bath becomes blood-red and colors the paper the same; in this case the print also whitens during exposure, but then the image, instead of being yellow, is red on a white ground. This substance, however, is, if we may so speak, inert, or without any other action; it is very fugitive, and even disappears in a short time in obscurity. It has no other use, therefore, than to render

the drawing or the image more visible after exposure. When the print has been sufficiently exposed it is taken from the pressure-frame and floated for a minute in the following solution, so that the side upon which is the image should alone be in contact with the surface of the liquid, avoiding air bubbles between the two surfaces. Otherwise defects would be found in the print; to ascertain this, raise in succession the four corners. The developing bath is composed as follows:

Gallie acid (or tannin)	31 to 46 gram.
Oxalic acid	14 gram.
Water	34 ounces.

In this bath the orange-yellow or red lines are changed into gallate or tannate of iron, and form, consequently, a veritable black writing ink, as permanent as it. The print is then plunged into ordinary water, well rinsed, dried, and the print is now finished. The violet-black lines become darker in drying, but unfortunately the ground which appears of a pure white often acquires, in drying, a light violet tint. For prints with half tones this is of no importance; but for the reproduction of plans, for example, it is very objectionable. By this process we have the satisfaction of obtaining a drawing in black lines similar to the original, and in most cases this is sufficient.

English Letter.

(From Our Regular Correspondent.)

LONDON, May 24, 1886.

THE WEEK

has not been productive of many events of interest in the metallurgical branches of trade, although it has not been wholly featureless. For instance, in the Scotch iron trade the rumors referred to in my last letter have been supplemented by a statement in to-day's *Times* that the affairs of Robert Addie & Sons, Langloan Iron Works, have been under investigation. The firm is said to be thoroughly solvent, but its capital is so locked up as to render inquiry, and so forth, desirable. You will understand that I do not make this statement of my own knowledge, but simply quote the *Times*, which is doubtless well informed on the subject. Were other troubles to occur in Scotland I should not be at all surprised, for I hear that certain financial arrangements which have been in existence for a long time past are likely to be disturbed. The net result may possibly be a forced limitation of the production—an event which would be hailed with joy by those who feel the millstone of the Scotch stocks around their necks. Sooner or later, it goes without saying, this making of pig iron simply for the sake of selling the warrants for them will have to cease, but in the interval which must elapse before that end is reached there is certain to be a period of trouble and difficulty. If Scotland should go on as at present, indeed, it will not be necessary for the rest of Great Britain to make iron, for the stocks at Glasgow will be sufficient to supply any reasonable demand.

The weather of the past week has been exceedingly wet, and it continues so as I write. The rain has fallen incessantly all day long, and everything is in a most saturated condition. Last week in the Midlands miles of country were feet under water, and a great deal of damage was done at Nottingham, Sheffield, Rotherham and other places. At W. Jessop & Sons' Works, Sheffield, a number of men were thrown out of work for a day or two, and in the district it is estimated that 7000 or 8000 men were temporarily idle. At Rotherham boats were rowed through the streets and the distressed people were relieved by food handed to them through their first floor windows. The farmers are complaining already, but so far I scarcely suppose they have suffered much—indeed, if we get warm weather afterward, the moisture will have a beneficial effect. It is abundantly clear, however, that we are nowadays liable to severe floods from comparatively moderate falls of rain. The system of drainage is so complete and thorough that the fall of rain is not absorbed and held for a time by the land, but passes off at once into the rivers, which are naturally unable to convey the water away as quickly as it is poured into them, the consequence being floods and a good deal of damage. Then we get a few weeks dry weather and there is a general outcry for the water, which we did not keep when we had it, and would give a good deal to get back.

THE IRON MARKET

has again been very quiet, and there is really no new feature to report in any of the ordinary branches of the trade. The question of restricting the output of pig iron appears to have been shelved—for the time being, at all events. At Glasgow warrants have been dull, and values are about the same as of late, the closing price being 38/4 p. ton. Scotch makers' brands are the same as last week, Gartsherrie No. 1 being 42/6; Coltness, 47/; Shotts, 44/6; Glengarnock, 42/6, and Carron, 47/6 p. ton, all deliverable alongside. At Middlesboro' the market has remained flat on the basis of 29/6 @ 30/ p. ton for No. 3, G.M.B., f.o.b. in the Tees. The local consumption is relatively small, and shipments scarcely equal an ordinary average. On the West Coast hematite pigs are fairly steady at 42/ p. ton for mixed numbers in usual proportions, and makers' brands at 42/6 for No. 1, 42/ for No. 2 and 41/9 for No. 3, all f.o.b. or f.o.b. Whitehaven or Workington. Elsewhere crude irons may be said to be wholly unchanged, but with the tendency of the market rather in favor of buyers. In some sorts of heavy manufactured iron a good turnover is being effected, chiefly for bridge, railway and general engineering purposes. The armor-plate departments at Sheffield are pretty well engaged on home and foreign account.

The galvanized-iron branch does not appear to be in a healthy condition, and values are irregular. It is noticeable, as adding a new complication to the trade, that shipments of galvanized iron are being made from Hamburg and Antwerp to the Australasian colonies. Fencing wire is quiet, and the German houses still seem to have the bulk

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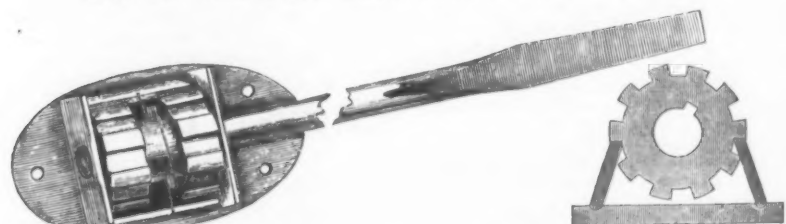
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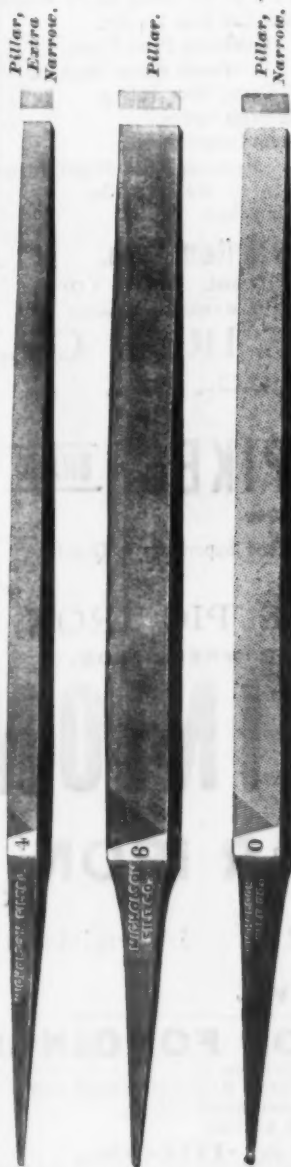
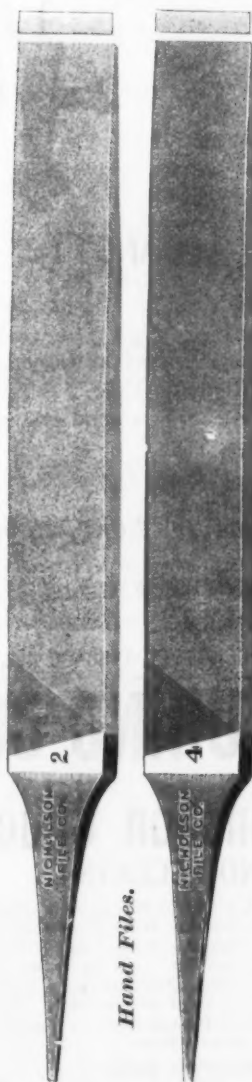
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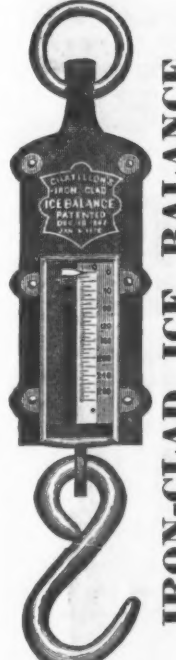
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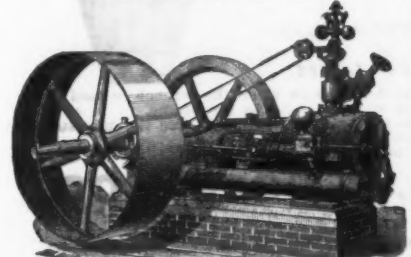
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 Being direct Importers and Manufacturers, we can offer superior
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 Strictly Chemically Pure Acids and Chemicals.
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Wrought Iron.
Anti-Friction.
IT EXCELS ALL OTHERS
 IN
 Security of Door.
 Strength of Material.
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THIS HANGER
 Requires no Oil.
 Has no Flanged Wheels.
 Packs snugly for Shipment.
SELLS BEST.
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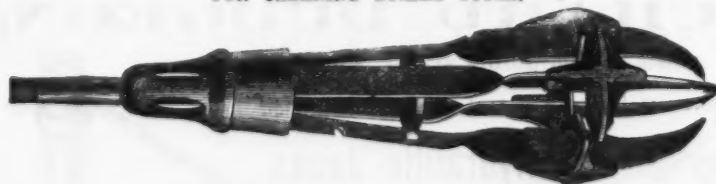
The Patent Steel Wire Door Mat,
 the greatest thing in the way of a mat
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 perfectly galvanized. Indestructible,
 cleanly, cheap. Adapted for any and
 every place where a mat or a matting
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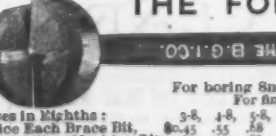


The front section of this Plane, to which the Cutter is attached, is
 movable up and down. It can be firmly secured to the rear section
 of the Plane at any desired point by means of a Thumb-Screw. Without
 the use of any other tool, this Plane will do perfect chamfer or stop-
 chamfer work of all ordinary widths.
 No. 72, Iron Stock, 9 inches in length, 1 1/2 inch Cutter, \$2.00.

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 MANUFACTURERS OF

TACKS, BRADS, &c.

We call the attention of the Trade to our "Diamond" and "Circle" brand Steel Carpet
 Tacks. "Diamond" brand, Uniform Weights; "Circle" brand, Double Uniform Weights; 6, 8,
 10, 12, 14, 16 ounces. "Diamond" brand, list, Blue, 17 1/2 c; Tinned, 50 c. "Circle" brand, list, Blue,
 7 c; Tinned, \$1.20. Warranted equal to Swedes in all essentials.



THE FORSTNER AUGER BIT,
 For boring Smooth, Round, Oval or Square Surface holes.
 For fine Carpenter, Cabinet and Pattern work.
 Sizes in Eighths: 3/8, 4/8, 5/8, 6/8, 7/8, 8/8, 9/8, 10/8, 11/8, 12/8.
 Price Each Brass Bit, \$0.45; \$5.25; \$8.25; \$12.00; \$15.00; \$18.00; \$22.00; \$25.00; \$30.00; \$35.00; \$40.00; \$45.00; \$50.00.
 Per Set of Five, 1-2, 5/8, 6/8, 7/8 and 1 inch, \$4.00.
THE BRIDGEPORT GUN IMPLEMENT CO.,
 New York Office, 17 Maiden Lane.

of the export trade. In ordinary finished
 iron the business of the week has been on a
 moderate scale only, and prices are just as
 nominal as they have been at any time dur-
 ing the past year or so. Some few produc-
 ers of bars, plates, sheets, straps, &c., are
 tolerably well employed, but real activity is
 a rarity. Swedish iron is very dull, the
 quotations for hammered bars being about
 £8. 15/ @ £10, ex-ship in London. Old ma-
 terials are steady at the following rates:
 Old double-headed iron rails, £2. 10/; No. 1
 heavy wrought scrap, £2 @ £2. 2/6; old
 iron boiler tubes, £2 @ £2. 2/6; old leaf-
 spring steel, £2 7/6; old cast iron, £1. 17/6
 @ £2, and old flange rails, £2. 7/6, all f.o.b.
 London or other British ports.

Freights are virtually unaltered in all
 directions, pig iron from Glasgow to New
 York by ordinary steamer being about 5/ 3/4
 ton. Steel is in moderate request, taking all
 branches of the trade. The converters and
 melters at Sheffield are not busy, but some
 of them are doing a pretty good business
 for local and general engineering, &c., pur-
 poses, while others are effecting a large out-
 put of forgings and castings. The Bessemer
 works are tolerably well engaged in billets
 and rolled sorts. The Siemens establish-
 ments are mostly in full operation. Steel
 rails are without special features to note,
 prices ranging from £3. 10/ up to £3. 15/
 7/4 ton for British and even lower for Ger-
 man makes. A few orders have been placed
 during the week, and there are other in-
 quiries in the market.

SCOTCH PIG IRON

is rather weak and irregular for reasons to
 which I have alluded above. Warrants
 have varied very little in value, owing to
 small transactions and uncertainty, while
 makers' brands are similarly inanimate.
 There are now 90 furnaces in blast in Scot-
 land, as against 92 a year ago. In Connal's
 stores there are 760,622 tons (an addition of
 6700 tons last week), compared with 556,568
 tons this date last year. The shipments to
 date are 35,790 tons behind, while the im-
 portations of Middlesboro' pig have decreased
 by 22,197 tons. Current prices:

Deliverable alongside.	No. 1.	No. 2.
Gartsherrie, at Glasgow.....	42/6	40/6
Coltness, ".....	47/	42/6
Langloan, ".....	44/	41/6
Summerlee, ".....	45/6	41/6
Calder, ".....	46/6	41/
Carnbroe, ".....	42/	39/6
Clyde, ".....	42/6	39/6
Monkland, ".....	39/3	36/
Quarter, ".....	38/6	35/6
Govan, at Broomielaw.....	39/3	36/
Shotts, at Leith.....	44/6	41/
Carron, at Grangemouth.....	47/6	44/6
Kinnell, at Boness.....	45/	42/
Glenrogie, at Ardrossan.....	42/6	39/9
Elgin, ".....	38/9	35/6
Dalmellington, ".....	40/6	37/6

MIDDLESBORO' PIG IRON

remains quiet at about the following rates
 for G. M. B., f.o.b. at makers' wharves in the
 Tees, net cash:

No. 1 Foundry.	32/3	Mottled	28/3
" 2 "	31/3	White	27/9
" 3 "	29/9	Refined metal	46/6
" 4 "	29/3	Kentledge	33/6
" 4 Forge.....	28/9	Cinder	30/

HEMATITE PIG IRON

is quiet, but fairly steady, at about 42/ 3/4
 ton for mixed numbers in usual proportions,
 and with West Coast makers' brands as
 under:

	No. 1.	No. 2.	No. 3.
Cleator.....	42/9	42/6	42/3
Lonsdale.....	42/6	42/	41/9
West Cumberland.....	42/6	42/	41/9
Lowther.....	42/6	42/	41/9
Distington.....	42/6	42/	41/9
Solway.....	42/6	42/	41/9
Maryport.....	42/6	42/	41/9
Harrington.....	42/6	42/3	42/

There are now 42 furnaces in blast in the
 West Coast, against 45 a year ago, when
 stocks in stores only were about 90,000
 tons, as against 109,832 tons at present.
 Shipments of pig iron have increased by
 7990 tons this year, while rail shipments
 have fallen off by 13,919 tons.

THE HARDWARE TRADES.

In London, although trade is not improving
 all along the line, a good number of
 branches feel a beneficial impulse which is
 very encouraging, and a much more hopeful
 view of things prevails than was the case a
 couple of months ago. Orders from the
 colonies and abroad have certainly been
 more frequent during the past fortnight,
 though little can be said with regard to
 values, the competition almost in every
 department being keener than ever. At
 Birmingham the floods and gales of the past
 week, though creating a demand for certain
 descriptions of iron and hardware, have on
 the whole operated unfavorably for trade,
 and shopkeepers are everywhere complain-
 ing of the loss of custom arising from the
 adverse weather. Recent suspensions and
 liquidations of merchant houses doing busi-
 ness with the manufacturers of this district
 add a heavy burden of debts to that of bad
 trade. United States orders are large and
 increasing for everything except guns, and
 the inquiries already on foot for Spain fore-
 shadow the development of an important
 business with that country. At Sheffield
 there is scarcely any change to note in the
 course of local trade, the only variations
 noticeable being as a rule the result of
 evanescent influences. In some of the higher
 branches patronized by retail buyers a
 progressive movement coincides with the
 development of the season, but in the main
 lines of industry, with one exception, it is
 hard to detect any improvement in the
 demand. The exception is in the crucible-
 steel branch, which has had an increasing
 call from foreign markets—the United
 States more especially—though it is suffering
 from a diminishing demand at home. Besse-
 mer special brands are still steadily super-
 seding the lower grades of cast steel. The
 export markets are not on the whole unsat-
 isfactory. The labor difficulties in the
 United States have not so far affected in-
 dented at the higher level which has pre-
 vailed during the last few months. The
 reports of colonial business also speak well
 of the latest orders to hand.

TIN PLATES.

In London a steady tone prevails and ob-
 tains, and prices are well maintained and are
 likely to continue so while tin remains at
 its present high level. Most of the works
 are reported to be well employed and to
 have good orders on their books. I quote

good ordinary IC cokes 13/3 @ 13/9, f.o.b.
 Liverpool. In Liverpool there is a steady
 business doing in tin plates this week again,
 and the market maintains almost an even
 keel, with but little tendency either upward
 or downward. We are now in the middle
 of the second quarter, with prices of ordinary
 kinds of coke tins at from 13/3 to 13/9 IC,
 and Bessemer steel plates in coke grades
 are pretty much the same, but the demand
 for the latter is now far in excess of the
 former, because special sizes, such as 14 x
 19 1/4, 14 x 19 1/2 and 10 x 20, are chiefly
 bought in Bessemer steels, also most squares
 and odd sizes required in those grades. The
 lesser known and commoner brands of coke
 tins are available at 13/3 @ 13/4 1/2 IC, and
 the better class at 13/6, 13/7 1/2 and 13/9 IC.
 Most of the Bessemer are 13/6 @ 13/9 IC,
 some ordinary sizes being occasionally had
 at a trifle less. The demand for Siemens
 steel plates with coke finish is rather quieter
 than usual. Charcoal tin plates (Bessemer
 and Siemens steel plates) are in fair request.
 The demand for ternes is more than met.
 There is a good demand for coke tin as well
 as Bessemer coke wasters.

Foreign Markets.

FRANCE.

PARIS, May 27, 1886.—Metals.—In view of the
 fine cereal crop and vintage prospects in France,
 Metals, together with other articles, began to de-
 velop greater buoyancy. Copper and Tin have
 advanced. Lead and Spelter are lower. We quote
 toward the close: Copper.—Chili Bars, 102.50 @
 106.25; Ingots and Slabs, 112.50; Best Selected, 115,
 and Corroco Ore, 106.25. Tin.—Banco, 257.50;
 Billiton and Straits, 255; Australian, 257.50, and
 English, 257.75. Lead, 32 @ 33, and Spelter, 47.50
 @ 38.25. Iron.—At the recent meeting of Northern
 rolling-mill owners the price of Common Merchant
 Iron was fixed at 13 francs, with 1 franc differ-
 ence between numbers. It is to be hoped that this
 agreement will be kept scrupulously on all hands.
 Lower offers were made and declined. The im-
 pending extended public works will, when com-
 pleted, moreover lend strength to the market,
 and makers will be glad that they put an end to
 unremunerative prices in due time. In this city
 prices are, strange to say still behindhand; thus
 the price of 11.50 @ 12.50 for Merchant and Floor-
 ing can be shaded. Old Rails are neglected at 6.50
 francs @ 100 kg. Puddling Pig sells at 3.75 @ 4
 francs, and Foundry at 4.50. At the North quite a
 demand has set in for Bolts and Rivets; the found-
 ries are also doing better. The Allemaigne Blast
 Furnace is soon to be blown out. Coal.—Although
 the demand for both Domestic and Steam Coal is
 but light, no decline is submitted to.—*Moniteur*
des Interets Matériels.

BELGIUM.

BRUSSELS, May 27, 1886.—Iron.—The situation
 of the market remains a satisfactory one, and
 there is plenty of work. Many makers, have
 booked orders enough to last them for three
 months to come. Activity not having been so gen-
 eral for a year past, confidence at length begins to
 revive. Prices are firmly sustained at previous
 quotations. Luxembourg Foundry Pig No. 5 may
 be quoted 4 francs @ 100 kg., and Puddling, 3.80.
 At Charleroi Foundry commands 5.15, and Pud-
 dling, 3.80 @ 4.70. Merchant sells easily at 10
 francs, with 75¢ difference between numbers for
 home use and 50¢ for export; for the latter deliv-
 ered at Antwerp. Beams are bringing 10 francs,
 Angles 11.50, and so for vessels 12.25. Plates are
 worth 11.50; No. 2 Sheets, 12.50; No. 3, 14.50; No. 4,
 20.50, No. 5, 25.50, less 30¢ for export. The price
 of Steel Sheets has been fixed at 15.50 as a basis,
 which seems high enough, yet is well under the
 price subscribed by consumers. The general outlook in
 the iron trade in Belgium is encouraging; prices
 have now been established on a basis which leaves
 makers a living profit, while being low enough to
 stimulate trade. As at the same time crop pros-
 pects are so far reassuring and money remains
 easy, there is every prospect that the better times
 which have set in are going to carry us without
 difficulty through the usually dull summer time.
Coal is the reverse of active, but the prevailing
 low prices are upheld.—*Moniteur Industriel.*

GERMANY.

HAMBURG, May 27, 1886.—Iron.—There has not
 been much change in the Pig-Iron market of
 Rhenish Westphalia during the week; Spiegel re-
 mains steady despite the light export demand.
 Puddling Pig is slightly tending upward, stocks
 being reduced and production curtailed. There is
 considerable inquiry for contracts for the next
 quarter. Foundry Pig is in the same unfavorable
 position as before, and prices remain weak.
 Thomas and Bessemer are in tolerably good re-
 quest. Merchant still fails to answer expectations,
 nor is the outlook for the immediate future at all
 encouraging. The demand for Boiler Sheets, if
 we except a few works, does not yet revive suffi-
 ciently to steady prices. Thin Sheets are neglected
 and have declined still further. Wire Rods are
 duller than before. The demand for the United
 States has subsided almost altogether. What is
 being done is in execution of former orders and
 will keep makers busy for a couple of months to
 come. Wire Nails are rather firmer. Car works
 receive but few orders and will have to dismiss
 hands. But few foreign orders are dropping in
 for machine shops and foundries; the domestic
 demand is large enough to keep them engaged
 with the reduced number of hands they at present
 employ. Prices obtained barely leave a margin
 of profit. In recent Steel-Rail adjudications Ger-
 man makers have been invariably underbid; they
 were asking 9 @ 10 marks @ ton more than their
 competitors, who are content to net 80 @ 85 francs
 at the works. Metals.—Lead has been quiet and
 Copper unaltered. The Mansfeld Copper Co. lost
 last year 662,000 marks, making 12,635 tons Copper
 and 75,975 kg. Silver.—*Borsenbulletin.*

HOLLAND.

ROTTERDAM, May 24, 1886.—Tin.—Our market has
 been hardening by degrees, there being a good
 consumptive and speculative demand at 57 guilders
 for Billiton alloy, and 57.50 Banca on the spot,
 —Koch & Vlierboom.

SPAIN.

BILBAO, May 24, 1886.—Iron.—The Iron-Ore mar-
 ket has relaxed into quietude. Bull prices are
 firmly sustained on the basis of 6 1/4 @ 6 1/2 for Su-
 perior Rubio. The weather, being dry, favors
 shipments, but has not been much availed of.
 Freight continues depressed. Engagements have
 been made for Glasgow at 5 1/2 ton. Shipments so
 far this year, 1,341,891 tons, against 1,230,148 in
 1884.—*Revista Minera.*

AUSTRIA.

VIENNA, May 24, 1886.—Iron.—There has been a
 marked improvement in the demand for Iron and
 Hardware, and there is a strong hope entertained
 that this time the greater briskness may be of
 some duration. Beams have improved about 4
 florin @ 100 kg. There has been a good demand
 for Hardware for Roumania. The market closes
 steady, as follows: Pig Iron, 43 @ 54; Sheets, 145
 @ 175; Merchant Iron, 95 @ 122.50, and Beams, 100
 @ 105. Metals have been more active. We quote:
 Copper, 55 @ 57 @ 100 kg.; Soft Lead, 16 @ 17.50;
 Spelter, 18.50 @ 19, and Banca Tin, 125 @ 124
 florins.—*Austrian Trade Journal.*

EAST INDIES.

SINGAPORE, April 30, 1886.—Tin.—Has continued
 extremely scarce and the market is firm at \$93.
 There are no present signs of any increase in sup-
 plies. Tonnage is less plentiful, but ample for
 present requirements. For New York both vessels
 on the berth are nearly full. For Boston the
 Hooley is loading. Exchange is a shade firmer
 at \$3 1/4 for six months' credits on London. Ship-
 ments during the first quarter have been 18,075
 piculs, against 8406 last year; 15,724 in 1884; 30,695
 in 1883; 33,252 in 1882, and 9679 in 1881. The P.
 Friederich Carl took from here for New York 2522
 piculs, and the Telemachus from Penang 430.—
Giffman, Wood & Co.

AUSTRALIA.

SYDNEY, N. S. W., May 6, 1886.—Iron.—There
 is no improvement, but few importing firms are
 doing a steady trade, and there is general com-
 plaint of a lack of animation. We quote Fence
 Wire No. 8 @ 40, 5/ and Galvanized Iron No. 2
 @ 217. 5/. Prices are in favor of buyers, and can
 easily be shaded.—*Per cable via London.*



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Manufacturers of Razor Strops & Dressing Cases.
Sole Agents for Worcester Cutlery Co.
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OF SUPERIOR QUALITY, FINELY TEMPERED DIAMOND EDGES.

Goods, both Nickel and Maroon Japaned Handles, are now made with Nickel-Plated Blades, giving them
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Every Pair Warranted. Money Refunded if Imperfect.
All SEYMOUR GOODS have well-hardened Blades, well coated with Nickel, and not, like many, with thin
Nickel wash and soft Blades.

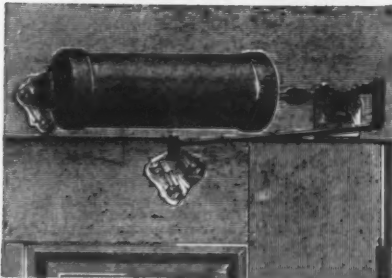


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GREAT REDUCTION IN PRICE.



The SHAW DOOR CHECK AND SPRING CO.
have removed to their new factory, and with their
increased facilities for manufacturing their goods
have decided to reduce the price of each
Spring \$1.00 from former list, and thereby
bring the machine within the reach of all.

The SHAW CO. are the owners of the oldest
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and with their new improvement produce the only
check and spring which the trade can sell as gen-
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JOSEPH RODGERS & SONS'

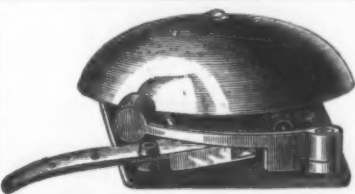
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PATENT COMBINATION WRENCH.

Case-Hardened Throughout. Paris Interchangeable.

This Wrench not only combines the superior qualities of a Gas Pipe Wrench but also
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No. 3 PATENT PIPE WRENCH.

The serrated jaws of the Wrench are interchangeable; that is, the same serrated plate
may be used for either the stationary or sliding jaw, so that if one plate is broken another
can be furnished adapted to either jaw without express designation. The slides, nuts and
various parts are also interchangeable, thus easily repairing the Wrench at very small
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Maker and Patentee of the Improved

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AND
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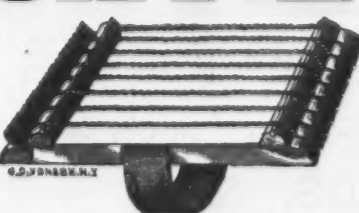
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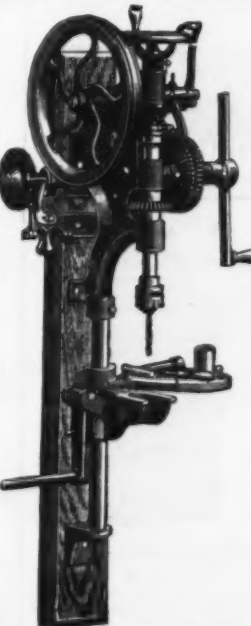
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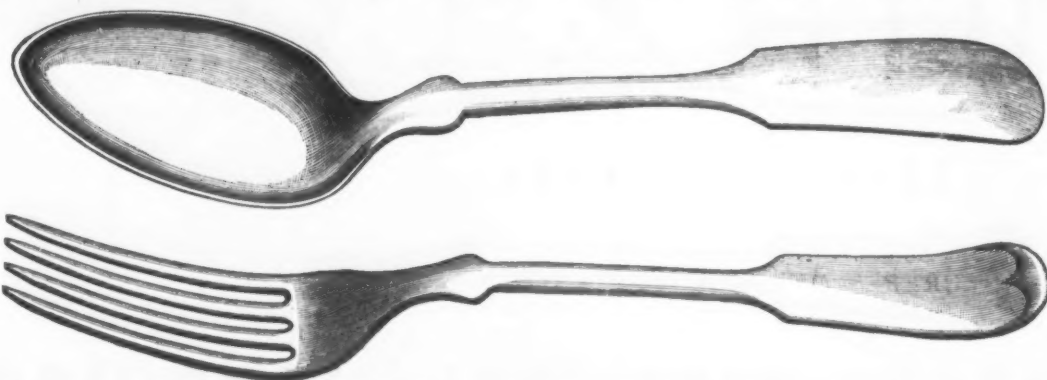
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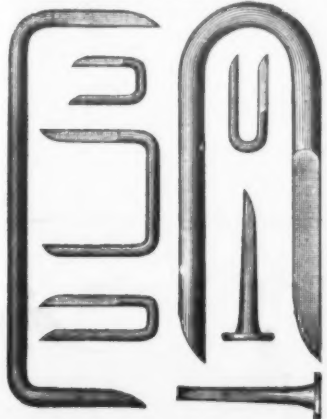
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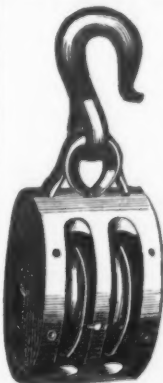
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THE WEEK.

Chas. P. Huntington, the railroad president, says, in regard to the new bridge to be built at Cincinnati, that contracts have been let for the ironwork for the superstructure and for the land approaches. This bridge is being built near the center of the city. A bill favorably reported in the Senate authorizes the St. Louis Merchants' Bridge Co., of St. Louis, to build a bridge across the Mississippi River at some suitable point between the present St. Louis Bridge and the mouth of the Missouri River.

The workmen employed at the Albany and Rensselaer Iron Works, also in the Burden Iron Works, have been granted 10 per cent. increase of wages.

The Cramp shipbuilding firm, in Philadelphia, have four steamers building for the coasting trade and eight under contract for H. B. Clyde & Co., of New York. They employ 1800 men. Mr. Cramp thinks that the outlook for shipbuilding is a little better than last year, and criticises the action of the Government in not granting the \$300,000 subsidy for carrying South American and Australian mails. Had that passed there would have been considerable work in American shipyards for a year to come.

The United States consul at Beirut reports that the petroleum obtained by experimental borings at Jemmet, on the Red Sea, is of a very superior quality, in illuminating power surpassing American.

The annual report of the Canadian Department of Fisheries states that with the exception of the Province of Nova Scotia, where a decrease of nearly \$500,000 in value is noticeable on the item of mackerel alone, the fishing industry is in a thriving condition. The total value of the fisheries of Canada for the year 1885 was:

Nova Scotia	\$8,283,921
New Brunswick	4,006,431
Quebec	1,719,459
Prince Edward Island	1,293,429
British Columbia	1,078,088
Ontario	1,342,691

Total. \$17,732,978
This is exclusive of the yield of Manitoba and the Northwest Territories.

Spring Garden, in Philadelphia, is to have a new pumping engine and new boilers, at a cost of about \$100,000, for which bids will be opened on the 15th inst.

Joshua Comly, of Philadelphia, four years ago obtained possession of the Hunter Furnaces in Montgomery County, Pa., and prepared machinery to crush the vast accumulation of slag and to make the same a marketable article for use in city streets and for ballast on railroads. Sixteen months after the works were in operation the Schuylkill Valley Railroad Co. built their road through his works and entirely destroyed them. Mr. Comly now seeks to recover damages.

The merchants of Panama are alarmed by a forced issue of paper money by the Government at Bogota. Debts payable in gold are made payable in an irredeemable currency, and, if the decree is enforced on the isthmus, merchants will advance the price of all commodities.

A ship canal across Long Island from Rockaway Inlet to Cow Bay is proposed. When completed all vessels from the South, it is predicted, will go through the canal and avoid Sandy Hook, Hell Gate and the Sound, shortening the route about 15 miles. The canal and breakwater at the entrance on the Rockaway side are estimated to cost \$4,000,000.

The Mexican Financier takes serious umbrage at the report of the Congressional committee against carrying into effect the reciprocity treaty with the Mexican Government. "The immediate effect of this action," the editor says, "is to throw the trade of Mexico into the hands of England and Germany, and the ultimate effect, extending far beyond this immediate result, is to create ill-feeling between two neighboring peoples whose mutual interest it is to cultivate the closest and most friendly relations."

The New York Chamber of Commerce almost unanimously adopted resolutions urging the Governor to sanction the new law providing for the election of aldermen in New York on a general ticket as being in the interest of good government and the taxpayers.

La Champagne, the latest addition to the French line of steamers to this port, was built at the yards of the company, near St. Nazaire. She is 508 feet 6 inches long, 51 feet 6 inches beam and 38 feet 4 inches depth of hold, with a registered tonnage of 7000 tons. The vessel is divided into 11 water-tight collision bulkheads that extend from the keel to the second deck. Her engines are triple expansion, with three large cylinders of equal size and each with separate condensers, air pumps and feed and bilge pumps. The three are all connected with the same crank-shaft. The boilers are eight in number, and are made of Terrenoire extra soft steel and stamped with a test of 120 pounds. There are 36 furnaces, each 41 inches in diameter.

An address on mechanical education was delivered by Prof. Jas. MacAllister at the opening of the mechanical schools of the Spring Garden Institute, in Philadelphia, last

week, in which he remarked that the school is a pioneer in that city, and destined to solve some, at least, of the labor problems of the day by uniting skill of hand with a development of knowledge and thought, which shall make American workmen educated mechanics.

The importations of green fruit at New York last year were valued at nearly \$4,700,000. The principal items were oranges and lemons. Bananas were next in order, to the value of \$1,000,000.

Yellow fever is now epidemic on the Isthmus of Panama, and is attended with many fatalities in Rio Janeiro. In Italy cholera has its victims.

Several French engineers inspected our local elevated system of railways last week, attended by Engineers Sloane and Walter Katte, expressing themselves well pleased.

The Staten Island railroad bridge bill can hardly be reached this season in the regular order of business before the House of Representatives.

The Knights of Labor Convention, at Cleveland, adjourned, *sine die* Thursday evening, after a 10-days' session. The convention was called for the purpose of considering five subjects—the Southwest troubles, the regulation of strikes and boycotts, the relation of the order with trades unions, the rapidly-increasing membership and labor legislation. The General Assembly have given to the world no token that they have touched upon the Southwest question. It is said that something has been done to shut off indiscriminate striking and boycotting, but the methods to be used have not been divulged. The assembly have regulated the reception of new members by recalling the commissions of their 600 organizers. In legislation they have petitioned Congress to give American land to American citizens and to appropriate non-resident aliens' property, and have also asked Congress to regulate the banking system by establishing loan offices in every county. The crowning act was the reply to the circular of the trades unions, which it was hoped would restore harmony between the orders engaged in labor reform.

The House passed the Oleomargarine bill by a vote of 177 yeas to 101 nays, after fixing the tax at 5 cents a pound instead of 10 cents. It is believed that the bill stands little chance of success in the Senate.

The fisheries difficulty will prove fortunate should it make more apparent the inadequate strength of the United States Navy and demonstrate the necessity for rendering it more formidable without delay.

The United States Grand Jury at Seattle, W. T., have found indictments against 10 leaders of the recent anti-Chinese riots in that city. They say that there exists throughout the country a treasonable society known as the Red American International Workingmen's Association; that their object is to obtain control of all labor organizations, with revolutionary objects.

A special committee on railroad axles have reported that iron axles are safer than steel axles; that all cranks should have the webs hooped; that as iron cranks appear to fail after running some 200,000 miles, and steel after 170,000, it is highly desirable that they should be taken off and not again used on passenger engines, and that crank axles, properly constructed, are as strong as straight axles.

E. B. Washburne, ex-minister to France, has accepted the presidency of the American Exposition to be held next year in London.

Lands in Southern California formerly covered with "sage brush" were selected by a fruit-growing colony, and this year's shipments of oranges have been made from that section to the extent of 131,000 boxes, comprising 428 carloads. The best acres net \$300 each this season.

An attempted general "tie-up" on the surface roads in New York and Brooklyn, in the expectation of coercing the Third Avenue Railroad directors, lasted one day only, and resulted in a complete triumph for the latter, whose receipts for the day were probably \$10,000. The elevated road also gathered a harvest, their trains running on a headway of but two minutes.

The Grand Jury in Chicago, in their presentment in the case of the anarchists, report that the danger from this source has been greatly exaggerated, that the total number of this class probably does not exceed 40 or 50 men, and that "the anarchist conspiracy had no real connection with the strikes or labor troubles, but that it simply made use of the excitement incident to those troubles as its opportunity."

Secretary Manning, whose health suffers from overwork, tendered his resignation, to take effect October 1, but under advice from President Cleveland will take a vacation. Meanwhile his resignation will be held in abeyance. Mr. Manning says in his letter to the President: "Our present tariff laws are a needless oppression instead of an easy burden. Our currency is a chaos into which we pour from forced purchases of one of the precious metals a mechanical increment under a coinage law so ill-judged and untimely that it hinders the opening of our

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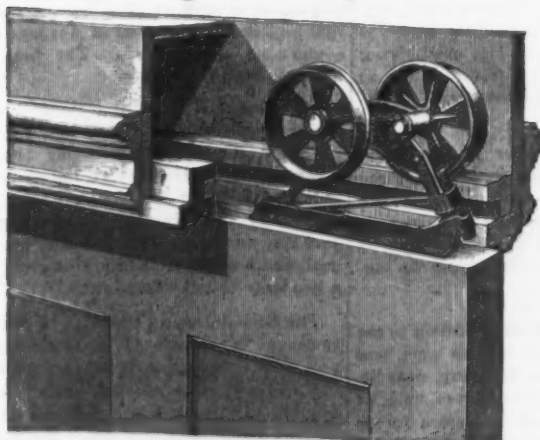
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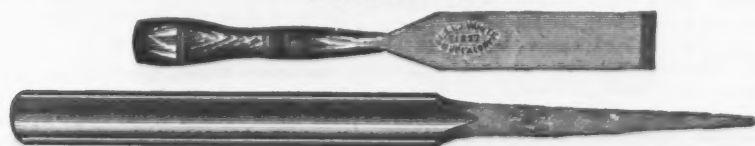
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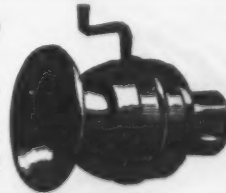
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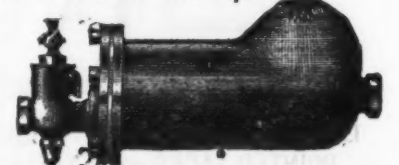
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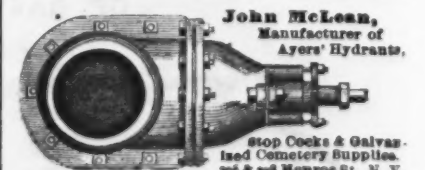
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The Argentine Republic is augmenting the national debt to a fearful extent, so that gold touches 56 per cent. premium. A loan just voted by Congress for the further prosecution of works at Buenos Ayres raises the public debt to the enormous sum of \$200,000,000, of which \$121,000,000 is foreign. In 1879 the amount was \$63,000,000.

Chicago is said to be losing her importance as a grain market on account of the heavy charges for handling, but warehousemen there contemplate changes to reduce fees for storage to the level of charges in New York.

The Mexican reciprocity treaty is supposed to have received its finishing death-blow in the refusal of the Senate to accept Mr. Sherman's resolution extending the time for its consideration. In this case it is conjectured that Mexicans will favor placing their trade more extensively under English and German control.

The intended removal of the Barbour Co.'s works from Paterson to Allentown, Pa., is supposed to be confined to the jute branch of the business.

The bolt and nail works at Lebanon, Pa., the largest in the country of their kind, were burnt on Sunday. Loss, \$150,000; insured.

A prominent importer and dealer in foreign rags expresses the opinion that all foreign rags will have to be disinfected on this side by the live-steam process, in which case it will add \$5 a ton to the cost, or 1/2 cent per pound to the price of paper.

A large building on Wabash avenue, Chicago, occupied by Bedford, Clare & Co., and others, was destroyed by fire. Every floor was filled with printing machinery. Loss, \$1,000,000.

British capital continues to flow freely into American enterprises of almost every kind South and West. Among the newest undertakings is the Scottish Carolina Timber and Land Co., Limited, with a capital of 200,000 shares of £10 each, established to purchase and cultivate lands in the State of North Carolina, where the company are said to hold an absolute title to upward of 80,000 acres.

Under the title of the Associated Manufacturers of Hosiery and Knit Goods, 47 manufacturers of Philadelphia, employing over 12,000 hands, have organized an association for mutual protection. The organization is the result of the recent demands of the employees. In the factories where finer grades of goods are made the increase asked runs as high as 55 per cent., while in the cheaper factories it reaches in some instances 200 per cent.

Proctor, the astronomer, in an article in the *Century* speculates concerning the origin of meteorites as follows: "Ranging the products of volcanic ejection in order according to the amount of iron they contain, and ranging meteorites in like manner, we find the two series coinciding over the greater portion of the longer—the volcanic series. We might not indeed have known how closely the most ferruginous volcanic products resemble the iron meteorites in structure but for the accident that Nordenskjöld discovered a mass which he mistook for an iron meteorite, but which is found now to be really a volcanic ejection, akin in structure to the field of basaltic lava (at Ovisak, on the shores of Greenland), in the midst of which it had fallen while the lava was still plastic, to retain this missile as it fell after its flight through many miles of air."

The proprietors of the Buffalo Chemical Works, Martin Kalbfleisch & Co., are happy over the success of an experiment in sinking a well for natural gas. They have struck gas at a depth of 1800 feet, and the fuel is now available for their works.

The difference in gauge between Northern and Southern railroads, now rectified, has operated seriously to the detriment of the South and its industries. It will be now possible for goods to be carried from New Orleans to New York or Boston almost as

rapidly and cheaply as they could be to New York from any point in the West or Northwest equally distant.

A porpoise factory has been established at Hatteras, N. C., with the aid of Wilmington capitalists, and, the company having procured special machinery and skilled laborers from Europe, purpose to supply the market with leather, oil and fertilizers. Sometimes 80 or 90 powerful creatures about 8 feet long are netted at a single haul.

San Francisco grows steadily year by year. In 1885 there were 1458 buildings erected in the city, at a cost of \$7,143,000. This number is four times in excess of 1880, and nearly double 1882, while the value is over one-fourth of that of the six last years.

There are said to be 2000 men, recently strikers, on Gould's Southwestern system who are out of work and have no prospect of getting any.

Warrants have been issued in Chicago for the arrests of Chauncey Griffin, Thomas Doyle, Aaron Jones, Thomas King and Peter E. Uness, for intimidating laborers at the Calumet Iron and Steel Works, and the case is set for hearing on the 11th. It is said that the Association of Metal Manufacturers have determined to prosecute all cases of this nature.

The St. Louis Councils are discussing plans for an increased water supply.

Representations made to the State Department, through mercantile correspondence and otherwise, respecting Greenbaum, the American consul at the Samoan Islands, are to the effect that without authority he has assumed a protectorate there with the design of getting control of the islands for some covert purpose; that several merchants have been arrested on frivolous charges, to the serious detriment to American interests.

A new ironclad just launched at Sebastopol for the Russian Government provokes unfavorable comment by the Vienna correspondent of the *London Telegraph*, as follows: "The *Tchesnia* is a six-gun corvette of about 10,000 tons, each of her guns being from 38 to 40 tons. The scantling is light and the riveting indifferent. To judge of the steel employed, it would be necessary to see it undergo a breaking and bending test. It is of South Russian manufacture and apparently good. The backing is in larch of questionable durability. The forgings of her stem and stern posts are sound. The brackets for her twin screws are in cast steel, and were made in England. They attempted repeatedly to make them in Russia, but could not succeed. The flanges of the screw brackets have been considerably weakened by the fastenings that have been adopted. As she has no masts, she will roll uneasily unless her center of gravity be placed unusually high."

The striking nailers at Cummings, Ill., being enjoined from preventing the removal of nails made by non-union workmen, their wives and children took possession of the tracks, effectually blocking the road.

Preparatory work in the construction of a dry dock at Newport News will commence at once. The dock will cost \$625,000, and will employ 600 hands for one year in its construction. When completed it will be the finest structure of its kind in the country, and will embody all the latest improvements of engineering and mechanical skill.

According to a telegram from Port Townsend, Ore., a mill there has received from Japan an order for ties to the amount of 120,000,000 feet. "An adequate conception of the size of this order," the *Post-Intelligencer* says, "can be formed when it is known that the mill has never cut more than 30,000,000 feet in one year. It would accordingly take four years of steady work to fill the Japanese order."

Most of the steamship lines in the British and German trade report an improved freighting business within the last two or three weeks. The Cunard Line claim to be doing a business 10 per cent. larger than that of a year ago, and rates are higher. The Anchor Line notice an increase in the trade to Glasgow. The Guion Line are carrying more freight, but at a reduced profit. The Honduras and Rotterdam there is no material change. French trade is slow.

The President of Peru in his address to Congress, 1st inst., speaks of the peaceable condition of the country and its progress in internal improvement, education and postal facilities. Thirty-five bridges, three railway lines and 16 new telegraph lines have been constructed within the past five years. The public debt has been reduced more than \$12,000,000, and the issue of paper money has been reduced \$1,600,000. In the budget for the coming year, 1887, the expenditures are calculated at \$32,000,000 and the income at \$35,000,000.

There are only 15 Chinese carpenters in San Francisco, and they have a union and practically settle their own price on their labor. Up to a year and a half ago the rate was \$2.50 a day, but at that time they struck for \$3 a day and have maintained the latter rate ever since. However, they only do light carpenter-work, and consequently do not interfere much with white carpenters. They have abandoned their old-style tools, such as the two-handed plane and the back-set saw, and they now use exclusively the American tools.

The Iron Age

AND METALLURGICAL REVIEW.

New York, Thursday, June 10, 1886.

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CHAS. KIRCHHOFF, Jr., - - - Associate Editor.
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REMOVAL.

The office of this journal is removed to 66 and 68 Duane Street.

The Knights of Labor.

The special session of the General Assembly of the Knights of Labor, at Cleveland, does not appear to have been as fruitful of benefits as was hoped. Well-defined internal dissensions seem to have been developed, and the General Master Workman does not appear to have strengthened his position. The element which controlled the convention and secured a majority of the additions to the executive board is not the best element in the order, nor the one most in sympathy with the position taken by Mr. Powderly in his circular letters which have come to the public knowledge through the newspapers. The rupture between the Knights of Labor and the trade unions has not been mended, and for the present they will not pull together. Perhaps this is advantageous. It gives assurance that the Knights of Labor will not be used in the future, as in the past, to make the boycott formidable—or, rather, that they will not allow themselves to be used in the interest of a power known to be hostile to anything which it cannot make wholly subservient to its plans and purposes. As an order independent of the trade unions, the Knights of Labor can be of immense advantage to the industries of the country. They hold the balance of power, and are not likely to use it, in the main, unwisely, as they represent many interests and include a large proportion of those not identified with the trade unions. So far as we can see, there is nothing very disquieting in the results of the Cleveland convention. It would have been better if the Knights had made fewer and less ostentatious deliveries on subjects related to national politics, and had not undertaken to instruct Congress on so many points. However, such utterances are harmless. The membership are not likely to surrender the privilege of voting as they please on election days, and, as no party is likely to embody the Knights of Labor demands in its platform, they will probably not have much influence upon the drift of national politics. That the order has gained nothing in power or prestige from its Cleveland convention seems to be admitted by all concerned. That

it has safely passed without serious disaster a crisis in its history is also evident. So far as can be judged, its present attitude is well calculated to discourage professional agitators, and induce them to look elsewhere for a congenial field of operations. This is an important point gained, and it is probably as much as we can expect from a body representing an order of such sudden growth and composed so largely of crude and undisciplined materials.

It should also be remembered that the delegates called to meet in the special session were those who have held over from last year. They are more or less prominently identified with the agitations of the past six months, and probably feel that the conservative course of Mr. Powderly has been an official rebuke to their efforts to make the order a terror to all identified with the interests of capital. If we are correctly informed, the new General Assembly which meets in October will be a different body. Its members were elected largely on the issues presented by Mr. Powderly. They will come fresh from the assemblies electing them, under instructions which it is probable will embody what the membership at large have learned from recent experience. If we are not mistaken, there is a strong personal loyalty to Mr. Powderly in the ranks of the order. Among the recent additions to the membership are many thousands who have joined the order because of the way in which its purposes and methods have been explained in Mr. Powderly's circular letters. They have been led to believe that it is a great conservative force, unalterably opposed to all anarchical teachings in any form of coercion and violence; to prevent strikes; to boycotts under all circumstances, and to the premature agitation of the eight-hour demand. The recent rapid growth of the order, after all doubt as to the attitude of the General Master Workman was dispelled by his emphatic public utterances, can only be explained on the supposition that those utterances were understood and approved, and that of those who have lately joined the order a majority at least regarded it as an organization likely to exercise a wholesome restraint upon the trade unions, and to serve as a check upon the tendency of the labor movement to go too far and too fast under unwise and unsafe leadership. If we correctly interpret the feeling of the order, there is every warrant for believing that the attitude of the October convention toward Mr. Powderly and his plans for promoting the good of the order will be very different from that of the convention lately held at Cleveland. The fact that the order has lost by the action of its representatives at Cleveland much of the popular confidence and respect which Mr. Powderly had succeeded in winning for it will not be without weight in influencing the action of such of the newly-elected delegates as have the welfare of the order at heart. All things considered, we conclude that it would be a mistake to attach undue significance to what appear to have been the mistakes of the special session at Cleveland. Nothing that was there done or said is likely to wreck the order between now and October, when the issue will be squarely drawn. The secrecy which surrounds the doings of the order is little more than a pleasing fiction. Free and intelligent newspaper discussion of its plans, purposes, utterances and motives cannot fail to have a good effect in inducing the delegates to be discreet. There is no chance for the concealment of anything said or done in a meeting or put in print for circulation among district and local assemblies. This fact is pretty well understood by this time, and the representative members of the order will in future meet and discuss questions affecting the welfare of labor with the knowledge that the great journals of opinion are watching them closely and intelligently, and that the only issue of a movement which attempts to run counter to public opinion is defeat and disruption.

After a brief period of rest the triple thermic motor has again been paraded before the public, accompanied by the laudatory report of an "expert." It is the same old story and would not be worthy of a moment's thought were it not for the fact that the persistency with which the matter is dragged into print might be mistaken for a recognition, by competent authorities, of its merits. The statement to which currency has been given, that engineers have been deeply interested in the demonstrations of the motors, is amusing, to say the least, though, on the other hand, men of capital have, in characteristic manner, very probably given time and money to this scheme, of which they know nothing but what has reached them through the inventor. It is not a difficult matter to make experiments bear out foregone conclusions, and both expert test and testimony in this case are, therefore, of a natural character. There is every reason to suspect that the test was not made to determine unknown quantities, but that certain figures were assumed as a working basis for shaping the character of the trial, and it is perfectly obvious from the published report that the results claimed are misleading and of positively no value whatever. Enterprising capitalists would do well to bear this in mind. The capabilities of carbon bisulphide, alcohol and other liquids as substitutes for water in a boiler for power purposes have been carefully studied, with results uniformly discouraging their use. The triple thermic motor pre-

sents no exception, and it is time its visionary character were more generally recognized.

Imports of Iron and Steel for the First Four Months.

The official import returns, including the month of April, just issued, do not on the whole show any movement of special significance. We tabulate below the figures covering the first four months of the calendar years 1885 and 1886, and those giving the total for the first 10 months of the fiscal years ending April 30:

Imports of Iron and Steel.

Articles.	First 4 mos. Calendar yrs.		First 10 mos. Fiscal yrs.	
	1885.	1886.	1885.	1886.
Iron ore.....	336,817	110,298	529,575	348,140
Pig iron.....	112,000	39,851	192,109	124,630
Iron scrap and old iron.....	25,328	4,557	39,990	18,964
Steel scrap.....	1,947	996	2,900	4,306
Bar iron.....	6,328	5,118	27,848	28,354
Steel rails.....	6,577	1,048	7,193	3,543
Cotton ties.....	244	2,059	13,022	14,056
Band, hoop and scroll iron.....			113	336
Steel hoops, bands, strips, sheets and plates.....	721	372	2,534	897
Steel ingots, blooms, slabs, billets and bars.....	35,099	6,001	47,587	14,935
Sheet, plate and tag-iron.....	1,400	974	5,410	8,491
Tin plates.....	76,144	185,790	181,107	107,107
Wire rods.....	54,118	25,284	106,541	108,051
Wire.....	1,125	437	2,582	1,850
Anvils.....	254	137	542	462
Chains.....	218	103	512	515

The total values of the imports of iron and steel for the first 10 months of the fiscal years 1885 and 1886 respectively were \$28,073,808 and \$29,359,806, so that the larger quantities brought in more than compensate for the decline in prices.

Running over the list it will be observed that there has been an increase in nearly every item, compared with last year. The most striking and to some extent the most alarming increase is that exhibited by steel billets. It is to be hoped that the recent accessions to capacity at our steel works and their natural growth in make through improvements in practice may enable our makers to confine this movement to narrower limits.

In order to show what proportion of the total imports come through New York, we append a table giving the data covering the first four months of the year, taken from a report compiled by Messrs. Thos. J. Pope & Bro., of this city, together with the imports for the first five months:

Imports of Iron and Steel Into New York.

Articles.	Total U. S.		N. Y.	
	4 mos. 1885.	5 mos. 1885.	4 mos. 1886.	5 mos. 1886.
Pig iron.....	112,000	34,415	33,579	18,017
Spiegel-iron.....	126,226	38,149	17,139	10,100
Old rails.....	112,502	14,493	10,100	10,100
Iron scrap.....	25,328	1,049	4,778	136
Steel scrap.....	1,947	5,818	5,875	5,875
Steel wire rods.....	54,118	24,636	43,896	43,896
Steel wire.....		1,588	1,708	1,708

The Bureau of Statistics does not separate spiegel-iron from ordinary pig. It will be observed that more than one-half of what iron is imported into New York is spiegel-iron, and that in turn a little less than one-half of the receipts of the whole country are entered here. It is likely, however, that the proportion is not by any means so heavy in favor of spiegel-iron, so far as the whole imports are concerned. New York receives the bulk of it, and by far the largest proportion, too, of Scotch foundry pig. On the other hand, Philadelphia and Baltimore are the ports of entry of the largest quantity of Bessemer pig and special grades of hematite pig for open-hearth purposes. The returns for old material are conflicting, as will be observed, so far as the classification of iron and steel is concerned. The New York returns specify much more steel scrap. It will be noted that more than one-half of the entire amount of old material imported enters through New York. The effect of the short-lived old-rail boom are clearly apparent in the figures. The New York returns of wire rods are of interest, because they show clearly how small the consumption of foreign iron rods has become, though it must not be forgotten that probably larger quantities go into Boston. On the other hand, New York receives comparatively little of the ore, which goes chiefly to Baltimore and Philadelphia; it takes only a small quantity of bar iron, which is shipped to Boston, and only a small percentage of the steel blooms and billets.

The Southern newspapers have obtained a pretty good record for indiscriminate exaggeration concerning the iron industry of the South, and it is not surprising that they should be too enthusiastic about its infant experimental steel manufacture. We have received samples of bars and nails made from Cranberry ore at the South Tredegar Works, which certainly prove the capacity of the steel to undergo torture, but we have long ceased to attach to specimens more importance than that which they possess as showing what can be done under other than ordinary circumstances. Good judges agree that there is an opportunity for making steel from Cranberry ore, but it would be very rash to build too heavily on them as the foundation of an exceptionally successful enterprise. Cranberry ore does carry as much as 60 to 65 per cent. of iron, but the run of the mine does not go over 40 per cent., if it reaches that. It is a difficult ore to mine, and could probably not be placed on cars at a profit for less than \$2.50 to \$3. The freight to Chattanooga would be \$1.85. Therefore it would be best to smelt the ore at some such point as Johnson City, near

Bristol, Tenn., at the junction of the narrow-gauge line which runs to the mines and the main line. The coke supply could be drawn from Southwestern Virginia at reasonable figures. The Bessemer pig produced might be delivered to Chattanooga as the most favorable locality for the steel plant. These, as we understand them, are some of the limitations, and are the best opportunities for the much-talked-of Southern acid steel. As compared with the sanguine predictions of the Southern press the facts indicate a much more modest future.

The Advance in Tin.

Since we last noticed the position of tin on May 6 there has been an advance in London of some £5 per ton, and a corresponding increase here. Statistically the market opened the month of May under favorable auspices.

London Statistics.

	April 30, 1885.	April 30, 1886.
Straits and Australian, spot.....	5,514	5,548
Straits and Australian, landing.....	578	5,448
Straits, afloat.....	990	1,844
Australian, afloat.....	729	735
Banco, on warrants.....	649	1,408
Billiton, spot.....	339	1,351
Billiton, afloat.....	1,015	1,438
Stocks in America, including quantity afloat.....	2,100	1,190
Total.....	12,186	18,654
Prices of Straits and Australian, £94. 10/.....	280. 5/	
Deliveries during month in London.....	1,474	1,719
Deliveries during month in Holland.....	608	820
Total.....	2,082	2,539
Banco in Trading Co.'s hands.....		2,905

By the middle of the month Messrs. Henry Rogers, Sons & Co., London, felt authorized to express themselves as follows:

Cash tin has advanced to £95. 10/ and for distant arrival £96. 5/ has been paid. The advance is fully justified, and the reluctance which both dealers and consumers have shown to cover their wants insures us a heavy demand in the immediate future. There is now little question but that tin must go higher, and importers state that both in the Straits and Australia no increase in production can be looked for at present, even if prices advance £10 a ton. Recent estimates, which are fully borne out by figures so far, point to a decrease in the Straits shipments this year of from 500 to 1000 tons, and of 1200 to 1500 tons in those from Australia. The consumption of tin promises to approximate to that of 1884 rather than to that indicated by the deliveries of 1885, which were contracted by the restriction in the make of tin plates. The fulfillment of these various forecasts would reduce our stocks 30 per cent. before the end of the year. In any case they make it certain that the reduction in the visible supply must be steadily progressive for some time to come.

On May 22 the London Mining Journal wrote:

The rise is the mere result of demand overtaking supply; stocks are very light, and with only a short supply coming forward there is nothing to depress the tone. If bear operators should attempt to bear the market their influence under such circumstances would more likely tend to give strength than otherwise, because it would be known that such sales would have to be covered, and there would be an effort put forward to keep the market up against such operators—an attempt to catch the "bears." A movement which in the present favorably-situated statistical position of the market would not be attended with any very great difficulty, because it would only require the supporting of the market for a time, and the covering of "bear" sales afterward would doubtless be enough to give very good profits to those who might now make purchases in order to strengthen the market. Another point of interest and strength during the week has been the advice both from America and Holland, where in strength the market has been very similar to that here, and the influence arising therefrom has been satisfactory and pronounced. In England also there is a fair business doing, and prices in sympathy with foreign have been still further advanced.

Toward the close of the month stimulating advice dropped in per cable from the East, where, in the Straits Settlements in particular, the receipts were falling off in a remarkable manner, confirming mail advices of April 26, which stated, from Singapore, that there were no present signs of any increase in the supplies. Shipments from the Straits Settlements to the United States had meanwhile during the first quarter been 18,078 piculs, against 8406 in 1885; 15,724 in 1884; 26,635 in 1883; 33,252 in 1882, and 9875 in 1881.

Import of Tin into the United States During the First Ten Months of Fiscal Year:

	1886.	1885.
Pounds.....	24,646,794	20,169,794
Re-export.....	81,463	81,151
Net imports.....	24,565,331	20,118,589
Or tons.....	10,967	8,981

Some few years since a similar short supply occurred, and the price temporarily advanced to £110 at a time when general business prospects looked less encouraging than at this juncture, when both Europe and this country are looking for a good fall trade provided the crops are good, which they promise to be at present.

In discussing the large increase in the steel-making capacity in this country we referred particularly to the open-hearth works and incidentally to the new Bessemer works. One subject we did not touch upon, namely, the number of Clapp-Griffiths converters built last year and now in course of construction. We have obtained a statement from Mr. James P. Witherow, who is identified with the latest modification of the Bessemer process. The works now running are: Oliver Brothers & Phillips, two 3-ton vessels, producing plate steel, tank steel, wire rods and metal for miscellaneous purposes; Port Henry Steel and Iron Co., Port Henry, N. Y., one 3-ton vessel, making ingots for the open market; Pottsville Steel and Iron Co., Pottsville, Pa., two 3-ton converters, running on metal for structural steel; the Glasgow Iron Co., Pottstown, Pa., two 3-ton converters for boiler and tank steel and nail

slabs, and the Western Nail Co., Belleville, Ill., two 3-ton converters, who use their product for nails exclusively. This is nine converters, in addition to which should be mentioned the 3-ton vessel at the works of McCormick Estate, at Harrisburg, which is an experimental plant, not being as yet equipped as steel works. Two other plants will probably be completed and ready to make steel in about six weeks. They are the one 3-ton converter of the Lickdale Iron Co., Lebanon, Pa., for making nail slabs for neighboring mills, and the two 2-ton converters for the E. & G. Brooke Iron Co., of Birdsboro, Pa. A two 3-ton vessel plant is building for the Spang Steel and Iron Co. of Pittsburgh, but it and the two new 3½-ton vessels for Oliver Brothers & Phillips will not be completed for some time. We are informed also that a 3-ton vessel has been contracted for by Eastern parties whose names are withheld at the present by their desire. It will be seen, therefore, that these new equipments add a very heavy total to the steel-making capacity of the country, the greater part of which is intended to displace puddling furnaces. Taken in conjunction with the open-hearth furnaces and with the large Bessemer converters running and building it furnishes ample evidence of what seems an excessive activity in providing facilities for producing steel. We may add that since our notice last week we have been informed that the Spang Steel and Iron Co., of Pittsburgh, are building one 10-ton open-hearth furnace, and that Messrs. A. & P. Roberts, of the Pencoed Iron Works, near Philadelphia, have begun the erection of a steel plant which will contain two 20-ton furnaces, and not one 15-ton furnace, as we reported last week. It should be noted, too, that some of the older Bessemer works, like the Troy Steel and Iron Co., of Troy, and the Cambria Iron Co., of Johnstown, Pa., have increased their capacity by replacing older smaller converters by larger ones. It seems certain, therefore, that the steel-producing capacity is far greater than the majority in the iron trade have any conception of.

The Meeting of the Amalgamated Association.

Besides bringing with it the usual uncertainty as to the outcome of the annual settlement of the wages to be paid in the majority of iron works west of the Allegheny Mountains, the meeting of the Amalgamated Association of Iron and Steel Workers has developed some other issues of considerable interest. Prominent among them is the effort to bring into closer and more harmonious relations the Knights of Labor and Amalgamated Association, which was one of the first to resent the enrollment as knights of the black sheep cast out of the union fold. Mr. Powderly made an address, enthusiastically received, in which he disclaimed any intention on the part of the organization he represents to "gobble up" the older union or to interfere in any way with its aims or methods. He appears to have succeeded in allaying all suspicion and quieting the fears of the delegates.

After considerable discussion and some opposition it was decided to readmit the nailers into the association. The United Nailers', Rollers' and Heaters' Association was organized at Wheeling, W. Va., on the 4th of April, growing out of the revolt of Hersey lodge of the general union. The nailers then entered upon the great strike, which is still unsettled so far as the old men and a number of mills are concerned. By their secession the members lost the active support of the Amalgamated Association. They finally receded from their original position of demanding the 21-cent scale for cutting, and asked for 18 cents on the basis of a \$2 card rate, with an advance of 1 cent for every 25 cents increase in the price of nails, and conceded a reduction of 10 per cent. for cutting nails on machines equipped with self-feeders. This the majority of the Western nail works have declined to accede to. The readmission of the nailers is important for the reason that, according to the law of the Amalgamated Association, the scale must be signed as a whole, and none of the employees may resume work, no matter whether they themselves are affected by the subject in contest or not. Furthermore, being members of the same organization, the union puddlers, heaters and rollers now working in a number of instances in the same mills with non-union nailers, would be bound to suspend work until union men were installed in the places of those now operating the machines. As yet it has not been decided whether the nailers' demands will be embodied in the general scale or not, and whether, therefore, all the iron-workers in the Western mills will be pledged to support them or not. Since the manufacturers, who succeeded in proving that nails can be as well made by feeders as by the nailers, have bound themselves to protect their new employees, the readmission of the nailers into the association is likely to add to the complications under which that trade is suffering in addition to ruinously low markets.

The Amalgamated Association is about to launch into an experiment which may prove to be a very dangerous one to its finances. It has been decided to build a co-operative mill with funds raised by individual members of the association as stockholders. It is urged on behalf of this scheme that it will give the association an insight into the cost of production, which is rather an awkward

confession, since in past years the claim was repeatedly put forward that the union was well posted in this respect. In view of the fact that the cost of production is effected by so many factors dependent upon location and special circumstances, the data obtained for one will be a pretty poor guide to arrive at general averages. Those who are the promoters of this scheme hope, through the absence of any contest in the wages question, to have advantages in the way of steady employment, and to make money for the association. Now it is one thing to make iron, and quite another to provide the executive and business ability to run a large concern successfully and to market its product to good advantage. Experience thus far on a small scale, and in other branches, is decidedly discouraging in that direction, and we question whether the association will fare any better.

The argument advanced by those members of the association who favor an advance on puddling was that the cost of manufacture had been reduced by the introduction of natural gas. In reply to it those iron-workers who are employed in mills which do not enjoy that advantage put forward the claim that a higher scale of wages without the claimed compensating profit by the use of the new fuel would simply mean full work for the natural-gas mills and steady employment for the other men. According to the advice thus far received those seem to have carried the day who were in favor of leaving the rate for puddling unchanged. A number of other changes are proposed in the scale, on which no decision had been reached at the time of going to press. The latest press dispatches indicate that the nailers' demands are included in the scale presented.

Condition of the Blast Furnaces of the United States June 1, 1886.

The condition of the iron markets during May has not been such as to encourage any notable increase in the number and capacity of the furnaces in blast in the United States, and yet our returns indicate a change in the direction of slightly greater product. Turning first to those plants which use anthracite we find that, while there were on May 1 119 furnaces capable of producing 36,924 tons of pig iron per week, there were on June 1 122 furnaces whose capacity per week is rated at 38,436 tons. In New York the Cedar Point Furnace has just blown in, while one of the Crown Point furnaces went out of blast about the middle of the past month. The May output was about 13,226 tons, against an estimated product of 14,479 gross tons in April. In New Jersey no changes have taken place in the status of any of their works, the May yield being 12,486 tons, as compared with 12,244 tons for April. We are not informed of any prospective changes in the near future. In the Schuylkill Valley one of the Pioneer furnaces and the second of the Plymouth furnaces went into blast again, thus carrying the total from 17 to 20, the May output being about 27,331 tons, as compared with about 24,559 tons in April. The second Reading furnace is getting ready. In the Lehigh Valley the only changes are one less running at the Crane Works, and one more at Glendon, the May output being about 47,320 tons, as compared to 47,441 tons in April. In the Upper Susquehanna Valley the same furnaces are running which were at work a month ago, to which has been added the Glamorgan Furnace, the May product being close to that of April, viz., 13,348 tons, as compared with 12,721 tons. In the Lower Susquehanna we record an addition of three furnaces, the second of the Chestnut Hill, one of the Bird Coleman furnaces and the Vesta. The Katherine Furnace blew out, as also the Swatara, which is expected to go into blast again soon. The May product was close to 40,000 tons, against an estimated make of 39,494 tons in April. Adding the product of the one anthracite furnace in Maryland, we reach a total for the anthracite furnaces of 155,005 tons for May, as compared with 152,359 tons for April.

It will be observed that on the first of June there were 130 bituminous and coke furnaces with an estimated capacity of 70,953 tons per week running, as compared with 129 furnaces and a weekly make of 67,888 tons on the first of May. In the Shenango Valley only one furnace, belonging to the Sharon Iron Co., was added to the list of producers. The make in May was slightly greater than that in April, the figures standing 31,519 tons and 30,135 tons. Ella and Henderson furnaces are expected to blow in soon. In the Juniata and Conemaugh Valleys the Everett furnace blew out, and one of the Rockhill furnaces ran only up to half capacity on account of an accident to an engine. The aggregate make for the last month was 23,581 tons, while that of the month preceding it was 23,547 tons. In the Youghiogheny Valley the only change is that due to the blowing out of the Oliphant Furnace, which is to be rebuilt, and this accounts for the falling off in the make from 6149 tons in April to 5952 tons in May. In the Pittsburgh district 12 furnaces are in blast with an aggregate capacity of 11,125 tons. Isabella No. 2 was getting ready on the first of June. From our returns we estimate the total make of the bituminous and coke furnaces of Pennsylvania in May at 111,221 tons, as compared with 108,373 tons in April.

In Ohio we have first the Mahoning Valley, in which no change took place in the

status of the different works. The product, however, was greater, returns from all but one furnace indicating an output of 31,500 tons, as against 29,785 tons in April. The Girard Furnace made an exceptionally large product, being its largest on record and considerably in excess of that reported by any other works in that section. In the Hocking Valley there is one furnace less in blast. In the Hanging Rock region the same furnaces are blowing, whose product was slightly greater in May than in April, when it was about 8900 tons, in spite of the fact that there was a strike at the Hamilton Furnace. Of the other furnaces in Ohio not classified under the districts named, the only change is that due to the banking of the Steubenville Furnace. Their product of 24,003 tons swells that of all the Ohio raw coal or coke furnaces of Ohio in May to about 72,875 gross tons, as compared with 73,834 in April.

In Illinois the same nine furnaces connected with Bessemer works which in April turned out 37,411 tons made in May 41,231 tons, the return from the North Chicago Rolling Mill Co. adding that their plant was idle two Sundays, which means something when it is turning out iron at the rate of 740 tons a day.

In the Southern States there were furnaces running in Virginia on the 1st of June whose product in May was about 9328 tons, against five on the 1st of May which had made 7411 tons in April. In West Virginia no changes have taken place, while in Kentucky the three coke furnaces in the State are now all in blast, having produced in May 3889 tons, against 2426 tons in April. In Tennessee six out of ten furnaces made 11,983 tons of iron in May, but both at Rockwood and at Sewanee the furnaces were banked during the change of gauge of the railroads. The second South Pittsburgh furnace will blow in as soon as that source of delay in receipt of materials is removed. In Georgia the Rising Fawn Furnace is running and the Cherokee Furnace will go in soon. In Alabama the Edwards Furnace is out of blast for the purpose of enlarging it. Those running in that State made in May 14,935 tons of iron, estimating the product of one plant not reporting. We estimate the total May product of all the bituminous and coke furnaces in the country at 284,460 gross tons.

There has been quite an increase in the number of charcoal furnaces running in different parts of the country. This is particularly notable in the case of the Hocking Valley, Ohio, where the Bloom, Hecla, Jefferson, Madison, Mt. Vernon and Olive furnaces blew in during the month. We are informed that the Scioto Furnace has been bought by Mr. A. Crawford, who is now making preparations for active work.

In Pennsylvania the Eagle, Hecla and Oley furnaces went into blast, and the Mont Alto is probably now running during May, and the June product will probably be considerably larger than that of last month, when it was about 1436 tons. In Michigan the Bangor and Peninsular have been added to the list of producers.

There is now every indication that the gun accident on board the British war ship Collingwood, to which we referred a few weeks ago, will have some good effects. The accident has thoroughly stirred up the authorities, and the investigation which will be conducted must bring out facts of general interest and of great value to all concerned. It has been suggested that if the fragments of the gun tube could be all recovered a flaw might be detected in the metal, but as only two pieces, we believe, are available for inspection, little need be hoped for from that source. After all, it is not very probable that the bursting of the gun was in any way due to a flaw, and miscalculation in the design will no doubt offer a ready explanation for the accident. In view of the experience also in the French navy since the introduction of very slow-burning powders this seems all the more likely, the tubes of existing guns there having in some cases been shortened by Government order in preference to their being blown off. At any rate developments in the matter now under consideration by the British authorities deserve close attention and may be expected to yield useful information.

Some time since our English cousins were considerably exercised over the fact that the Union Bridge Co., of this city, had succeeded in carrying off the contract for the Hawkesbury Bridge, New South Wales. All sorts of possible and impossible explanations to account for this fact were put forward, and now the English makers are again puzzling over the matter because the American concern has placed the bulk of the contracts for iron and steel in Great Britain. They insist that if an American firm could secure the business, then surely some English concern ought to have been able to get the contract. We are informed that the Union Bridge Co. found that they could have the material manufactured more cheaply in Great Britain than they could do it themselves, though the difference was only slight. There were other considerations, however, which overcame a difference in cost that would not have otherwise been thought sufficient to counterbalance the obvious advantages of manufacturing the iron and steel at their own plant. A part of the work, the steel for about 1800 tons for

CONDITION OF THE BLAST FURNACES OF THE UNITED STATES JUNE 1, 1886.

(Compiled for The Iron Age.)

Location of Furnaces.	Charcoal.					Anthracite.					Bituminous or Coke.				
	Total number of stacks.	Number reported in blast.	Capacity per week.	Number reported out of blast.	Capacity per week.	Total number of stacks.	Number reported in blast.	Capacity per week.	Number reported out of blast.	Capacity per week.	Total number of stacks.	Number reported in blast.	Capacity per week.	Number reported out of blast.	Capacity per week.
New England.....	14	6	586	8	350										
New York.....	10	3	450	7	570	34	13	3,925	21	5,835					
New Jersey.....						16	7	2,850	9	2,375					
Spiegel.....						3	2	135	1	90					
Pennsylvania.....	27	8	427	19	448										
Lehigh Valley.....						48	38	11,134	10	2,692					
Schuylkill Valley.....						44	26	6,521	24	4,860	1	1	775	0	0
Upper Susquehanna Valley.....						20	13	3,017	7	1,350					
Lower Susquehanna Valley.....						38	28	10,454	10	1,110					
Pittsburgh.....											16	12	11,125	4	3,925
Spiegel.....											1	1	450	0	0
Allegheny Valley.....											2	1	775	1	80
Shenango Valley.....											23	13	8,005	10	4,540
Youghiogheny Valley.....											6	4	1,400	2	575
Juniata and Conemaugh Valleys.....											21	14	5,163	7	2,097
Maryland.....	14	2	206	12	669	4	1	400	3	440	2	1	120	1	90
Virginia.....	24	5	255	19	862						13	7	2,785	6	1,945
North Carolina.....	2	1	120	1	90										
West Virginia.....	3	0	0	3	165						6	4	2,655	2	470
Ohio.....											17	12	6,912	5	2,300
Central, Eastern and Northern.....											17	10	5,706	7	1,463
Hocking Valley.....											17	7	1,973	10	1,640
Hanging Rock.....	17	6	528	11	685						15	10	2,128	5	795
Miscellaneous.....	2	0	0	2	420										
Kentucky.....	3	2	235	1	125						3	3	997	0	0
Tennessee.....											10	6	3,152	4	1,650
Georgia.....	2	0	0	2	150						2	1	700	1	300
Alabama.....	11	8	2,100	3	375						10	8	4,324	2	360
Indiana.....											2	2	417	0	0
Illinois.....	25	12	3,350	13	2,585						16	9	9,310	7	2,870
Michigan.....	10	4	750	6	532						2	0	0	2	580
Wisconsin.....	1	0	0	1	210						2	1	675	1	50
Minnesota.....	1	0	0	1	210										
Missouri.....	4	2	445	2	463						7	3	1,467	4	1,963
Texas.....	2	1	230	1	110										
California.....	1	0	0	1	245										
Washington Territory.....	1	0	185	0	0										
Oregon.....	1	0	0	1	100										
Colorado.....											1	0	0	1	600
Total June.....	174	61	9,867	113	9,154	207	122	38,436	85	18,752	212	130	70,953	82	28,293
Total May.....	185	45	8,211	139	12,701	208	119	36,924	89	19,565	212	129	67,888	83	30,200

* One-half anthracite.

eye-bars, has been placed with the Steel Co. of Scotland. This steel will be shipped to this country, will be manufactured into eye-bars, and will then be forwarded to Australia. The English newspapers make the foolish statement that "the contractor, by a special arrangement with the American Government, is allowed to import the steel to his works—where it will be manipulated—free of duty, for the reason that the material is not to be retained in the country." The United States Government cannot and does not make any such arrangements with anybody. The Union Bridge Co. import the steel bars, paying full duty, and, when they re-export as eye-bars, receive the drawback minus 10 per cent. of the duty, which is retained by the Government. The simple solution of the whole matter, which is so extremely mysterious to our English friends, is that American engineers have learned to design bridges better than they do—so much so, in fact, that they can pay English prices for the bulk of the material, convey a part of it to an interior point in this country, pay duty on it, lose a few months' interest on the money and let the Government keep a part of it, reship, and yet build a cheaper bridge, capable of full service, than their English brethren. Not only that—we can afford to tell them why it is so.

WASHINGTON NEWS.

(From Our Regular Correspondent.)

WASHINGTON, D. C., June 8, 1886.

Representatives Morrison, Randall, Blount, Reagan, Cobb and Dunn having been appointed a committee on the order of legislation on certain necessary measures pending in the House, have had a conference, but have not fully agreed as to the line which shall be followed. The appropriation bills will, of course, take precedence of all other business. Mr. Morrison has not abandoned his plan of discussing the tariff bill for political effect. Mr. Reagan has his inter-State commerce bill on hand. Mr. Blount urged his postal measures. Mr. Cobb presses land bills, while Mr. Dunn has not abandoned his proposition for free ships. It will be seen that each member of the committee on the order of business has his own pet measure. It is not likely that much legislation outside of the measures in which these gentlemen are interested as chairmen of committees or in charge will be favorably considered. The appropriations for public buildings on the calendar may be admitted, but it is not probable that all of these will go through.

TARIFF DISCUSSION.

The Legislative Appropriation bill, which is now in order, will have been disposed of before the close of next week. It is Mr. Morrison's intention then to move to go into committee of the whole on his measure. A canvass of protection Democrats indicates that over half that number are anxious to speak, and will so vote. A few Republicans who are also in favor of speaking will join them in voting with Morrison to go into committee of the whole. The majority of the Republicans now talk of trying to kill the bill without permitting it to come up for discussion. From present indications Mr. Morrison's plan to get the bill in committee of the

whole and to adjourn pending discussion will be the most probable outcome of this measure in the first session of the Forty-ninth Congress. What may happen in the second session or in the Fiftieth Congress will depend entirely upon the results of the Congressional elections this fall. If the issue made in Congress on tariff revision should show as a result an increased number of sympathizers with Morrison the contest will go on. If the other way, it will be dropped, so far as pro-British legislation is concerned, although tariff revision will probably be carried out in the reconciling of certain inequalities, raising duties on some articles and lowering it on others.

THE QUESTION WITH MANUFACTURERS.

There are evidences that manufacturers, workmen and farmers who are favorable to the American system of protection have somewhat abated in their zeal, because they imagine that nothing will be done with the tariff at this session. This confidence is well grounded, because there is not the slightest chance of the passage of the Morrison bill. But an election on November 2, 1886, or less than five months hence, is much more important to them than the action of the present Congress. One of their complaints next to the passage of a free-trade bill is the constant agitation of the subject. The way to put an end to agitation is to remove the cause. The way to remove the cause is the re-election of Morrison and the leaders in this periodical upheaval and uncertainty beyond the limits of participation in the legislation of the country. This could be done by the nomination of new men or their defeat at the polls. Mr. Morrison's majority is not so large that it could not be overcome. A fusion of Republicans and protection Democrats would do it. The labor influence, properly directed, it is said, could do it.

TEST OF MATERIALS.

The suspension of the rules for the consideration of bills of committees will not come up again until June 28, and even then the position of bills of the Committee on Manufactures on the calendar is such that there does not seem to be even a prospect of a chance to secure action on the Structural Test Commission. The present outlook confirms the opinion that the interests of peace and engineers and the security of the public who live in modern houses and travel on modern lines of transportation will have to wait another Congress.

STEEL ORDINANCE.

It is now proposed to incorporate a liberal sum in the appropriation bill for the manufacture of steel for ordnance and ship armor. There is some question as to the acquiescence of the opponents of the necessary work on the ground that to properly inaugurate the work new legislation not admissible in an appropriation bill will be required. In that event the special act proposed would be brought forward. As a rule those who control legislation are anxious to have some action taken, so that work may begin at once. The importance of preparation is shown in the recent events in Canadian waters. A single shot or resort to force on either side might bring on a collision which the Government would be in no condition to follow up. The act would also greatly stimulate certain branches of iron and steel industries, which would benefit business generally.

RECENT CUSTOMS DECISIONS.

Tin cans containing lobsters, the contents being exempt from duty under the provision in the free list for "shell fish," are liable to

duty according to size, under the provision in the act of February 8, 1875.

Sheep shears are dutiable at the rate of 45 per cent. ad valorem, for "manufacturers, articles or wares not especially enumerated or provided for, composed wholly or in part of iron, steel * * * or any other metal," inasmuch as it is ascertained that these articles are not commercially known or recognized as "cutlery." This ruling confirms the previous decision of March 30, 1865, on the same question.

It has been heretofore decided, first, that base bullion in which lead predominates in weight should be classified upon importation as lead in pigs, and, second, that ores composed of silver and lead and iron, or silver and lead, or silver and other base metals, of which silver is the component material of chief value in either of such ores, are exempt from duty, under the provision in the free list, for "ores of * * * silver."

The provisions of Section 2496 of the Revised Statutes, as amended by the act of March 3, 1883, concerning the protection of trade-marks, is not applicable to foreign manufactures, but only to domestic manufactures protected by domestic trade-marks.

A convention was signed in Berlin six weeks ago in which Germany and England clearly define their respective interests and spheres of influence in the Western Pacific. By its terms these Governments agree to regulate their proceedings in a vast region extending east and west from the meridian of the Hawaiian Islands to the west end of New Guinea, and have drawn a line which, starting from a point where the eighth parallel of south latitude intersects the coast of New Guinea, passes south of Bougainville, Choiseul and Isabella, the three great northern islands of the Solomon Archipelago, and then bears away in a northeasterly direction and passes between the Marshall and Gilbert groups. England agrees not to acquire territory or accept protectorates north of this line, neither will she oppose the unlimited extension of German influence there, and she will abandon all her protectorates or acquisitions of territory north of this line. Germany makes exactly the same promises with regard to the islands south of the line. The immediate effect of this convention is to take from Germany the Gilbert group, the latest of her annexations, and to transfer a considerable number of English and German trading posts to the flag of the other power. It cannot yet be said what commercial possibilities are in store for the Western Pacific, for, surprising as it may seem, this great region of water and land is still one of the least known parts of the world.

At Thryberg Hall, Yorkshire, England, the colliery was set on fire in a curious manner by floods. The water rushing down the cupola shaft, where the furnaces were fixed, reversed the ventilation, and sent the flames in the direction of the down-cast shaft, setting fire to the conductors and woodwork at the bottom. Fortunately the men were got out in safety, but the fire was not extinguished before much danger was done.

The strike of the journeymen house carpenters of Baltimore was settled last week, the men "agreeing to nine, instead of eight, hours for a day's work, and not to interfere with the business of their employers in the employment of workmen."

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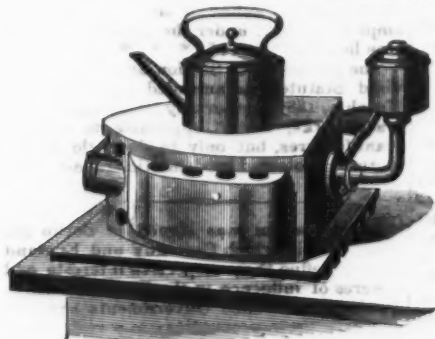


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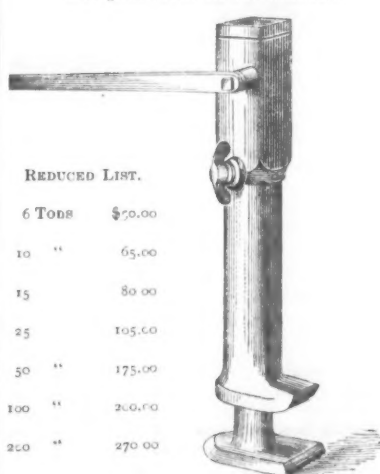
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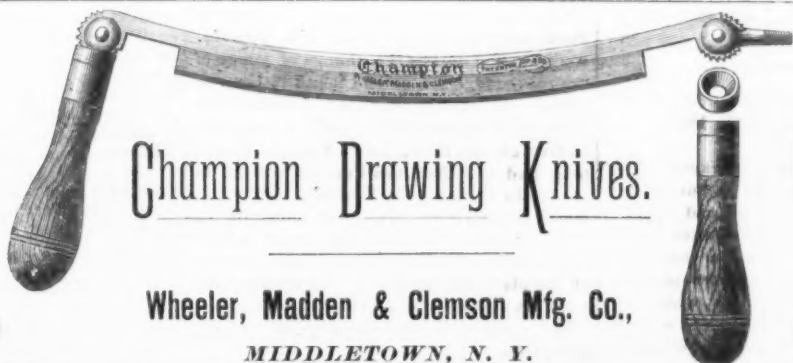
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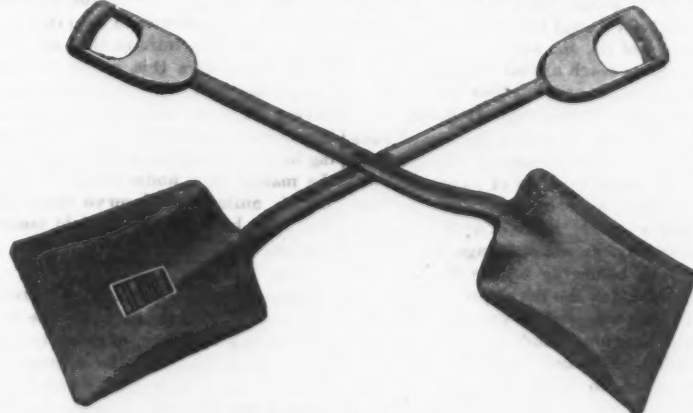
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COLD CHISELS, PUNCHES.

WOOD, COAL and STONE } WEDGES.

Prices quoted on application.

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Special Notices.

BOOKS.

THE NEWEST BOOKS.

The Journal of The Iron and Steel Institute. No. 2. 1885. \$4.25.

Manual Training: The Solution of Social and Industrial Problems. \$1.50. C. H. Ham.

Precautions to be Adopted on Introducing the Electric Light; with Notes on the Prevention of Fire Risks. \$1. H. H. Hedges.

Journal of the Society of Telegraph Engineers and Electricians. \$1.60.

Organic Chemistry; Second edition. By W. A. Tilden (being the 15th edition of Foulie's Organic Chemistry). \$2.35. H. W. H. Hedges.

Pocket Book for Chemists, Chemical Manufacturers, &c. \$1.

Modern Whist; Together with the Laws of Whist; a Guide to the Winning Game. \$1.50. J. M. Ingalls.

Flow of Water in Open Channels, Pipes, Sewers, Conduits; with Tables Based on the Formulae of D'Arcy, Kutter and Bazin. 50 cents. P. J. Fign.

Exterior Ballistics in the Plane of Fire. \$2.50. Capt. J. M. Ingalls.

Outline of Lecture Notes on General Chemistry: The Metals. \$1. J. T. Stoddard.

Builders' Work and the Building Trades. \$1. Col. H. C. Seddon (A. E.).

The Russian Storm Cloud; or, Russia in Her Relation to Neighboring Countries. 30 cents. Stepanak.

Triumph of Democracy; or Fifty Years' March of the Republic. A Thoughtful and Forceful Comparison of the Monarchy and the Republic showing by facts and figures the wonderful advancement of the United States in the past half-century. \$2. Andrew Carnegie.

England's Supremacy; Its Services, Economics and Dangers. Paper. 30 cents. J. S. Jeans.

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FOR SALE.

DAMAGED BAND AND ROD IRON.

For sale low, or in exchange for Scrap Iron or Scrap Steel.

DAN'L W. RICHARDS & CO.,

92 MANGIN STREET,

NEW YORK.

Bargains in Machinery.

One Horz. Corliss Engine, 32 x 54.
One " " " 30 x 48.
One " " " 18 x 42.
One " " " 10 x 36.
Three Horz. Tubular Boilers 80 H.P.
Three " " " 50 H.P.
One Nos. 2, 3, 4 and 8 Knowles' Steam Pumps.
One Nos. 2, 3, 4, 5 and 7 Blake.
D. B. CRICKSHANK,
245 Dyer St., Providence, R. I.

Wanted

\$25,000 capital to manufacture Open-Hearth Steel Ingots and Castings in any large iron district, to erect building, and for working capital, by parties having a furnace of 30 tons capacity per day, and owning patent shop rights for all purposes connected with its use. The Steel is produced down to 0.07 per carbon, by basic or acid processes, with one-sixth the coal, one-fourth the loss of metal and repairs of the Siemens' furnace, and when treated by liquid compression by method also used by Krupp becomes 70 to 100 per cent. stronger and intrinsically better. Address "METALLURGIST," Room 31, Mills Building, Fourth Floor, New York.

WANTED.

Party representing and traveling through the West for other interests wants also to represent a firm manufacturing Common Store-Pipe Iron. Must be a good grade of cheap iron; no other iron wanted. A No. 1 reference. Address "B. Y.," Chicago Journal of Commerce.

FOR SALE.

A well-established Agricultural Implement Manufacturing business in the best town of 20,000 inhabitants in Iowa. Business established five years. Address BOX 339, Cedar Rapids, Iowa.

HARDWARE Store for sale in Central West, having a well-established business and surrounding country unsurpassed. A bargain to the buyer. Address "WELLER," Office of The Iron Age, 66 and 68 Duane St., N. Y.

TRAVELER with six years' experience in Hardware Trade will be open for engagement after July 1st. Line Specialties preferred; on salary or commission. Address "TRAVELER," Box 89, Office of The Iron Age, 66 and 68 Duane St., N. Y.

WANTED a partner in a Hardware Store, with \$50,000. Situated in one of the largest and growing towns in Virginia. Address "OPPORTUNITY," Office of The Iron Age, 66 and 68 Duane St., N. Y.

Special Notices.

Sale of Valuable Iron Property.

Pursuant to a judgment of foreclosure and sale made by the New York Supreme Court, the works and other property of

Peru Steel and Iron Company

will be sold at public auction, June 30th, 1886, at 10 o'clock a. m., at the Court House in the village of Plattsburgh, N. Y.

The property is situated in the counties of Essex and Clinton, N. Y., and comprises over 21,000 acres of land well covered with wood for making charcoal. Upon the property are a large stone forge with 16 fires, ore separators, foundry, saw and grist mills, shops, store, dwellings, barns, dams and fixed machinery and appliances for making Charcoal Iron direct from the ore.

The property includes an undivided interest in the PALMER ORE MINE, which is provided with steam engine, air compressors, &c. The ore from this mine is used in making the celebrated "PERU" iron, which for conversion into cast steel is equalled by few irons in the world. There are also included mining rights in many thousand acres of land, upon which deposits of valuable minerals are known to exist.

For further detailed information, apply to

FRANCIS J. DOMINICK, Receiver,

No. 115 Broadway, New York City.

NOTICE

TO THE

Hardware Trade.

I shall be ready to deliver No. 3 Champion Chain on the 26th inst. for light sashes.

Tensile strength 150 to 175 lbs. Price 4 1/2 cts. per foot, with the usual discount to the Trade.

THOMAS MORTON,

65 ELIZABETH ST., NEW YORK.

36-INCH PLANERS.

We are prepared to furnish a few 36-inch planers of the most approved construction at very low prices. Send for our circulars of

Pulley Lathe, Pulley Borer and

Lathes,

from 26-inch to 72-inch swing.

THE NEWARK MACHINE TOOL WORKS,

NEWARK, N. J.

FOR SALE.

6284 feet of 2 1/2-inch Cold-Rolled Shafting.
592 Hangers.
300 Couplings.
677 feet of 3-inch Cold-Rolled Shafting.
53 Hangers.
25 Couplings.
1533 feet of 4-inch Cold-Rolled Shafting.
94 Pillow Blocks.
97 Couplings.
892 feet of 6-inch Cold-Rolled Shafting.
25 Pillow Blocks.
70 Couplings.
All cold-rolled and in first-class condition, having been but little used at the late Exposition, at very low prices.
SHAKESPEARE, SMITH & CO.,
No. 219 Girard St., New Orleans, La.

FOR SALE.

One Plain Cylinder Boiler, 30 ft. long, 30 in. diameter, with the castings necessary to set it up; one upright steam hammer, built by Ferris & Miles, Philadelphia, cylinder 12 in. diameter, 24 in. stroke, weight of ram 1500 lbs., weight of anvil block about 7 tons; one horizontal engine, cylinder 8 in. diameter, 16 in. stroke; one Abbey Patent Bolt Forging Machine; two Chapin Bolt Heading Machines; one Brusco Track Bolt Heading Machine; one small Heading Machine; one small Knowles Steam Pump; one small Fan Blower; one Three-Spindle Nut Tapper.
J. H. STERNBERG, Reading, Pa.

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Successors to

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HARDWARE AUCTIONEERS,

12 Murray St. and 15 Park Place, N. Y.

Sales held weekly for the Trade. Consignments solicited. We refer to the leading manufacturers and importers.

FOR SALE, ENGINE.

One 16 x 30 inch Balanced Slide Valve Engine; Band Wheel, 10 ft. diameter, 18 in. face; Engine ran only about two months on light work, and is in first-class condition. Address P. O. BOX 641, Pittsburgh, Pa.

FOR SALE.—An old and well-established Hardware, Store and House-Furnishing Goods business, established in 1851. Address Estate of W. J. SWITS, Schenectady, N. Y.

WANTED by a man with several years' experience, a position as Roller on either bar or guide mill. Good references. Address "AVIGNON," Office of The Iron Age, 66 and 68 Duane St., New York

HARDWARE BUSINESS FOR SALE in a village of 2500 inhabitants; location, West-crit New York; good surrounding country; stock about \$5000; best reasons given for selling. Address S. K. GREEN, Bergen, Genesee Co., N. Y.

Special Notices.

HIGHLY IMPORTANT SALE

OF THE

Vulcan Iron Works Property, of

Baltimore City,

Corner of William and Hughes Sts. I

AND

ALSO ALL OF THE MACHINERY, TOOLS, MATERIALS, FIXTURES, ETC., VALUED AT OVER \$60,000.

By authority of the owner, we will sell on Tuesday, June 22, 1886, at 10 o'clock, a. m., on the premises, the valuable property known as the Vulcan Iron Works, beginning at the northeast corner of William and Hughes Streets, binding on Hughes Street 233 feet; thence 146 feet to Armistead Lane; thence along Armistead Lane 233 feet to William Street, and thence 146 feet to William Street to place of beginning. The entire lot is all under roof, chiefly two-story brick buildings with slate roofs. Ground rent \$100 per annum, \$100 of which is redeemable.

Also immediately after the sale of the property, we will sell without reserve, by catalogue, all the valuable and modern Machinery and Tools, in first-class condition, by the best makers, viz: Sellers, Hillis & Jones, J. P. Morris & Co., New Haven Mfg. Co., and others, valued at over \$60,000, consisting of Lathes, Planing Machines, Radial Drills, Slotting and Shaping Machines, Boring Mills, Punching and Shearing Machines, Boiler Makers' Rools and Tools, Cupolas, Root Blowers, Steam and Hand Cranes in great variety, Small Tools of every description, Pig and Scrap Iron, Moulding Sand, &c. Also 50-horse Vertical Engine, Water Tube Boiler, Shafting, Pulleys, Belting, Patterns, Blacksmiths' Tools, Stocks and Dies, &c.

Terms for the property: One-fourth cash, balance in one, two and three years, with interest and security, or all cash. All sums under \$100, cash; under \$250, sixty days; all sums over \$250, four months, with approved indorsed notes, bearing 6 per cent.

N. B.—Sale peremptory. Catalogues will be ready Monday, June 7.

SALE BY KIRKLAND, Auctioneers,

25 and 30 South Charles St., Baltimore, Md.

ENGINES & BOILERS.

NEW AND SECOND-HAND.

The following new Slide Valve Engines guaranteed complete and first class:

One 10 x 12. One 10 x 15. One 10 x 24. One 12 x 16. One 12 x 24. One 12 x 30. One 12 x 36. One 12 x 42. One 12 x 48. One 12 x 54. One 12 x 60. One 12 x 66. One 12 x 72. One 12 x 78. One 12 x 84. One 12 x 90. One 12 x 96. One 12 x 102. One 12 x 108. One 12 x 114. One 12 x 120. One 12 x 126. One 12 x 132. One 12 x 138. One 12 x 144. One 12 x 150. One 12 x 156. One 12 x 162. One 12 x 168. One 12 x 174. One 12 x 180. One 12 x 186. One 12 x 192. One 12 x 198. One 12 x 204. One 12 x 210. One 12 x 216. One 12 x 222. One 12 x 228. One 12 x 234. One 12 x 240. One 12 x 246. One 12 x 252. One 12 x 258. One 12 x 264. One 12 x 270. One 12 x 276. One 12 x 282. One 12 x 288. One 12 x 294. One 12 x 300. One 12 x 306. One 12 x 312. One 12 x 318. One 12 x 324. One 12 x 330. One 12 x 336. One 12 x 342. One 12 x 348. One 12 x 354. One 12 x 360. One 12 x 366. One 12 x 372. One 12 x 378. One 12 x 384. One 12 x 390. One 12 x 396. One 12 x 402. One 12 x 408. One 12 x 414. One 12 x 420. One 12 x 426. 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Trade Report.

New York.

American Pig Iron.—The market shows practically no change. There is a fair demand for small lots to cover immediate requirements, and some business is done for July delivery. The Southern furnaces are somewhat embarrassed now on account of the change of gauge, both so far as receipts of material and deliveries of iron are concerned. We quote for standard brands, tidewater delivery, \$18 @ \$18.50 for No. 1 X Foundry, \$17 @ \$17.50 for No. 2 X Foundry, and \$16 @ \$16.50 for Gray Forge, with the market in buyers' favor. Outside brands are 5¢ below these quotations. We print elsewhere our usual monthly review.

Scotch Pig.—The market is dull, and the arrivals light. We quote nominally as follows for small lots: Coltness, \$20 @ \$20.25 to arrive; Gartsherrie, \$19.25 @ \$19.50 to arrive; Shotts and Langloan, \$20 @ \$20.50 to arrive; Carnbroe and Glengarnock, \$19 @ \$19.25 to arrive; Summerlee, \$19.75 @ \$20 to arrive; Dalmellington, \$18.75 @ \$19 to arrive; Eglington, \$18 to arrive, and Clyde, \$18.50 @ \$19 to arrive.

Bessemer Pig.—We do not hear of any business, either in Foreign or Domestic, and continue to quote nominally Foreign \$18.75 @ \$19, and Domestic \$18 @ \$18.25 at furnace.

Spiegelisen.—The majority of the Bessemer works being well supplied for some time to come the market is dull. We quote German 20 % Spiegel nominally \$25, and English, same grade, \$25.50.

Bar Iron.—Reports are contradictory so far as Common Iron is concerned. Some sellers claim to be doing a little better, others complain that orders are being postponed. We continue to quote for delivery here in round lots: Common Iron, 1.65¢ @ 1.70¢; Medium, 1.70¢ @ 1.75¢; and Refined Iron, 1.75¢ @ 1.9¢. Store prices are 1.75¢ @ 1.80¢ for Common, 1.85¢ @ 1.90¢ for Medium, and 1.9¢ @ 2.2¢ for Refined.

Structural Iron and Steel.—A fair business is being done at unchanged prices. We quote for Angles 2¢ @ 2.10¢, delivered, and Tees at 2.40¢ @ 2.45¢, for round lots. Steel Angles are quoted 2.35¢ @ 2.45¢, according to quality. Store quotations remain 2.25¢ @ 2.4¢ for Angles, and 2.6¢ @ 2.7¢ for Tees. American Beams and Channels are 3¢ base from dock for all orders.

Plates.—We quote for round lots: Common or Tank, 2.12¢ @ 2.20¢; Refined, 2.14¢ @ 2.22¢; Shell, 2.4¢ @ 2.5¢; Flange, 3.4¢ @ 3.5¢; Extra Flange, 4¢ @ 4.1¢. For small lots of Steel Plates the quotations are as follows: Tank, 2.70¢ @ 2.75¢; Ship, 3¢; Shell, 3.1¢; Flange, 3.5¢, and Fire-Box, 4¢ @ 4.1¢, on dock.

Merchant Steel.—Quotations for the range from ordinary to good grades are as follows: American Tool Steels, 7 1/2¢ @ 9¢; Tool Steel of special grades and finer qualities, 12¢ @ 20¢; English Tool, 13¢ @ 15 1/2¢; common grades, 7¢ @ 9¢; Crucible Machinery, 4.5¢ @ 6¢; Round and Flat Spring, 2.6¢; Round-Edge Tire, 2.6¢; Square-Edge Tire, 2.9¢; Toe Calk, 2.7¢; Sleigh Shoe, 2.8¢; Open-Hearth Machinery, 2.8¢, and Bessemer Machinery, 2.5¢, with freight allowance.

Steel Rails.—In the aggregate considerable business has been done East and West, and there is quite some pressure to place orders for early delivery. Practically all the mills are so full for June and July work that they are not in a position to quote. A number of orders for Northwestern roads have been taken, and it is reported that one Western mill, the only one which could do the business, has closed for 3000 tons, June delivery, for the Union Pacific. It is reported that 12,000 tons for later delivery have been shared by a number of Eastern mills. We hear also of 3000 tons of English Rails for a Mexican road, to be delivered in New Orleans, in transit, the order including also the track material. We quote \$34.50 @ \$35 for early delivery, and \$34 @ \$34.50 for later work, according to size of order.

Old Rails.—We note a sale of 1000 tons of American Tees for delivery at a point in Eastern Pennsylvania, and a sale of a small lot of Old Steel Rails. We quote \$18.50 @ \$19.

Scrap.—The market is very quiet at \$18.50 @ \$19.

Rail Fastenings.—Some of the mills are well supplied with orders for early delivery. We quote Spikes, 2.20¢ @ 2.40¢; Angle Fish Bars, 1.75¢ @ 2¢; Bolts and Hexagon Nuts, 2.8¢ @ 3¢.

Philadelphia.

Office of The Iron Age, 220 South Fourth St., Philadelphia, June 8, 1886.

Pig Iron.—The market continues dull, and while there is no material change in prices it is felt that the tendency is in buyers' favor. There is so little demand, however, that prices have not been fairly tested, and even the best informed men in the trade are at a loss to know what the outcome will eventually be. In proportion to the furnace output, which is unquestionably large, the actual supply available for new business is comparatively insignificant, so that if there was any certainty of consumption being maintained in its present

proportions firm, if not higher, prices might reasonably be expected. The feeling on this point, however, is a little doubtful; in fact, for the next 60 days there is too much reason to fear that consumption will fall off considerably, and that accumulations of Pig Iron will continue, and in the meantime give buyers advantages not now obtainable. Of course this is merely a theory, but in the absence of anything like an active market the future is necessarily theoretical. Judging from facts as presented, viz., a light demand, a gradual accumulation of stocks at furnaces and a probability of a considerable shrinkage in consumption during the next two months, the chances certainly appear to be in buyers' favor. The other side of the story, as presented by one of the leading firms in the trade, is about as follows: "Consumers have been looking for lower prices for the past three months, and are rapidly clearing up their contracts to the last ton of Pig Iron. They will have to buy before long, and, as nearly all the large consumers are in the same position, it will not require much buying to give the market a fresh impulse toward higher prices." Our readers will, of course, form their own opinions on the matter, but in view of the increased offerings of Southern Irons, and the scarcity of new business among consumers of Pig Iron and its gradual accumulation at furnaces, we confess our inability to see anything likely to help the market in the near future, unless something unexpectedly favorable turns up. Be this as it may, buyers are the ones that hold off. Sellers are ready to treat liberally with any one willing to take 500 to 1000 ton lots and upward, but offers of this kind are few and far between. Sales during the week have been in small lots at \$18.25 @ \$18.75 for No. 1 Foundry, which is comparatively scarce; \$17 @ \$17.50 for No. 2 Foundry, which is dull and heavy, and \$16 @ \$16.50 for Gray Forge, which is somewhat pressed for sale, although not in particularly large supply, for immediate delivery. Southern Irons are neglected, although offered at \$15 @ \$15.50 ex-ship for quality similar to our Gray Forge. Nothing doing, however, and no bids made for large lots.

Foreign Iron.—Dull and neglected, no demand whatever. Sellers quote \$18.75 @ \$19 for ordinary brands; \$19.50 @ \$19.75 for special brands, and \$25 @ \$25.50 for 20 % Spiegel.

Blooms.—Dull and unchanged; quotations nominally as follows: Slabs for Nail Plate, \$30 @ \$31 at tide for Foreign and \$30 at mill for Domestic, and from that to \$35 for higher qualities; special grades for Boiler Plates and other uses requiring high tensile strength, \$36 @ \$39. Other Blooms as follows: Charcoal, \$52 @ \$54; Run-out Anthracite, \$43 @ \$44; Scrap Blooms, \$33 @ \$34, and Ore Blooms, \$34 @ \$35.

Muck Bars.—Market very quiet, with quotations at \$28 @ \$29, according to quality of Bars and location of mill.

Bar Iron.—There is no improvement in this department, everything being as dull as can be, and without any prospect of immediate improvement. The substitution of Steel is gradually eating into the Bar trade, so that no one looks for more than temporary rallies. Specialties are in fair demand, however, and on the whole mills are fairly employed, although taking very little business extending beyond this month delivery. Prices are irregular, and probably a little easier in some quarters. Best Refined Bars nominally 1.8¢ @ 1.85¢, but these figures are shaded on good-sized orders; 1.7¢ quoted for medium qualities, and 1.82¢ @ 1.87¢ for Skelp.

Plate and Tank Iron.—The market must again be reported dull and inactive, with no demand beyond what comes from the smaller class of trade. Large consumers are taking in no new business of any account, therefore are not in the market, although still receiving a fair amount of stuff on old contracts. Prices steady and unchanged as last quoted: Ordinary Plate, 2.05¢ @ 2.1¢; Tank, 2.1¢ @ 2.2¢; Shell, 2.5¢; Flange, 3.5¢; Fire-Box, 4.25¢; Steel Plates, Shell, 3.25¢; Flange, 3.5¢; Fire-Box, 4¢.

Structural Iron.—There has been some little improvement in this branch of the Iron trade, but only in small lots, and the amount of business entered is not much in excess of the week's output. There is no inquiry for large lots, and the probability is that the present day-to-day demand will continue some time longer. Prices are steady, and in some cases appear to be held a shade firmer, as follows: 2¢ @ 2.05¢, delivered, for Angles; 2.1¢ @ 2.2¢ for Bridge Plate; 2.4¢ @ 2.5¢ for Tees, and 3¢ for Beams and Channels.

Sheet Iron.—The demand is fair, and in some departments mills are quite full of work. Many of the large buyers are still taking small lots, but it is hardly likely that they will place large orders on better terms than at present, as a heavy demand is expected during the fall months, and stocks are very light. Prices are irregular and for some makes very low rates are named, but for standard grades prices are steady, and for small lots about as follows:

Best Refined, Nos. 24, 27 and 28..... 4¢
Common, 1/4¢ less than the above..... 3¢
Best Bloom Sheets, Nos. 24 to 28..... 4 1/2¢ @ 5¢
Best Bloom Sheets, Nos. 22 to 25..... 4 1/4¢ @ 4 1/2¢
Best Bloom Sheets, Nos. 16 to 21..... 3 1/4¢ @ 4¢
Blue Annealed..... 3 1/2¢ @ 4¢
Best Bloom, Galvanized, discount..... 60¢
Common, discount..... 65¢

Steel Rails.—The urgent demand for Steel Rails has resulted in a full dollar ton

advance, sales having been made at \$36 at mill, with that figure firmly held for deliveries during the summer and fall months. There is still a good deal of business to be placed, and it is thought that \$35.50 @ \$36 or higher will be easily maintained during the summer months.

Old Rails.—There is some little improvement as regards inquiries, but buyers are very exacting as to size of Rail, quality, &c. One lot of about 1000 tons was taken at a little over \$20, delivered at a near-by point, and even that figure is not easily obtained unless the make is just about what consumers require. The supply is large, and bids eagerly sought for, but without much success, as \$20, delivered, is about buyers' ideas of value. Asking prices, \$20 @ \$20.50, Philadelphia.

Scrap Iron.—The demand is very irregular, with prices varying according to quality, quantity and point of delivery. A somewhat larger business is reported during the past week, prices averaging about as follows: No. 1 Wrought Scrap, \$18.50 @ \$20; No. 2 do., \$13 @ \$14; Turnings, \$14 @ \$14.50; Old Car Wheels, \$15 @ \$16; Old Steel Rails, \$18.50 @ \$20; Fish Plates, \$23.50 @ \$24.50; Cast Scrap, \$14 @ \$15; do. Turnings, \$10 @ \$10.50.

Wrought-Iron Pipe.—The demand is still very active and manufacturers have all they can do to make deliveries as promptly as required. Prices are firm and it is not unlikely may be advanced a little, but in the meantime discounts are unchanged, as follows: Lap-Welded Black, 57 1/2¢; Butt-Welded Black, 42 1/2¢; Butt-Welded Galvanized, 32 1/2¢; Lap-Welded Galvanized, 40¢; Boiler Tubes, 52 1/2¢.

Nails.—The market is thoroughly demoralized, and, while small lots are quoted at \$2.10 @ \$2.15, carload lots and upward can be had at extremely low figures, \$1.85 @ \$1.90 being mentioned in some cases. There is no regular price, however, and if a buyer stands ready with cash for 500 to 1000 keg lots he can pretty nearly name his own price. The six weeks' scheme for a suspension of work has fallen through, and for the present it will be every man for himself, without much regard for prices.

Pittsburgh.

Office of The Iron Age, 77 Fourth Avenue, Pittsburgh, Pa., June 8, 1886.

There has been no decided change in the general business during the week just closed. In some respects the outlook is favorable, while in others it is not as encouraging as it might be. The crop outlook never was more promising. Late advices from the great Northwest, so far as regards the agricultural interests, are of a most favorable character, and our manufacturers, who are dependent largely upon that section for a market, are hopeful that the last half of the year will show better results than the first. The labor situation is assuming a more satisfactory position; strikes are not nearly so common as they were some time ago, and the working classes as a rule are more disposed to be reasonable. The more observing of them know that strikes injure themselves as much as the employer, if not more so. The conference committees of the Iron manufacturers and the Amalgamated Association takes place July 1, and the meeting is being looked forward to with a good deal of interest. It appears to be pretty generally accepted that the iron-workers will demand an advance, but how much is not known at present. What will be the action of the manufacturers in the event of an advance being demanded is not known, as it is very generally admitted that there is nothing in the business to justify an advanced wage scale, which, as it now stands, is much higher here than at the East, where for years past the same work has been done, and this, in connection with cheap freights, has enabled Eastern mills to compete with those of Pittsburgh in Western markets, notwithstanding that Pittsburghers have the advantage of natural gas. Eastern mill owners have had the advantage of those of Pittsburgh for years in the matter of labor, which to some extent has been offset by natural gas as fuel.

Pig Iron.—Market dull. Consumption continues large, estimated in round numbers at 5000 tons a day, but a good many consumers anticipated future wants some time ago, and those who did not are buying only as their immediate wants require. If the wage scale is settled without a strike an improved demand may be looked for next month, as a great many mill owners will be very low in stock by that time; but if there should be a shut-down there would be very little Pig Iron wanted while it continued. Prices continue weak, and Mill Irons may be quoted off 25¢ ton. We quote as follows:

Neutral Gray Forge..... \$16.00 @ \$16.25, 4 mos.
All-Ore Mill..... 17.50 @ 18.00, 4 " "
White and Mottled..... 15.25 @ 15.75, 4 " "
No. 1 Foundry..... 18.00 @ 18.50, 4 " "
No. 2 Foundry..... 17.00 @ 17.50, 4 " "
No. 3 Foundry..... 16.00 @ 16.50, 4 " "
All-Ore Foundry..... 19.00 @ 19.50, 4 " "
Charcoal Foundry..... 20.00 @ 20.00, 4 " "
Cold-Blast Charcoal..... 25.00 @ 27.00, 4 " "
Bessemer Iron..... 19.00 @ 19.50, 4 " "

Bessemer Iron continues exceedingly dull; there was a small sale at \$19, cash, but large blocks are being offered at \$18.50, cash, without finding takers. Some furnaces have contracts, made some time ago, that will absorb their production for from one to three months to come, and at a good deal better prices than can now be obtained.

Muck Bar.—There has more inquiry developed during the last week, and the market has been firmer in consequence. We repeat former quotations, \$27 @ \$27.50, cash, as to quality.

Manufactured Iron.—There has been an increased demand for the past few weeks, caused chiefly by anticipations of a strike, when the market always stiffens. Manufacturers as a rule are refusing to accept orders beyond this month, with a view of keeping themselves in position to be prepared for a strike. Stocks are comparatively light, both in first and second hands. We continue to quote best quality Iron on a basis of 1.70¢ @ 1.75¢ rates for Bars, 60 days, 2¢ off for cash; Old Rail Iron one to two tenths less.

Nails.—There is nothing new to note, excepting that the nailers have voted to go back into the Amalgamated Association, but this is not likely to have any influence upon the strike. The Nail trade is dull. The course of the market during the past year has justified the position taken by the manufacturers that they were not able to accede to the demands of the nailers; otherwise the strike would have been broken long ago. Prices are still quoted at \$2.15, 60 days, 2¢ off for cash, with a rebate of 10¢ keg on carlots and upward. The regular monthly meeting of the Western association takes place at Chicago to-morrow.

Wrought Iron Pipe.—The regular monthly meeting of the association was to have taken place in this city last Thursday, but as there was not a quorum present there was no business transacted. The Eastern manufacturers, for some reason or other, failed to show up. Business keeps up well; mills all busy and prices firm, but unchanged; it is difficult to have an order placed for immediate delivery. Black Butt-Welded, in carlots, 45¢; do. Galvanized, 35¢; Black Lap-Welded, in carlots, 60¢; Galvanized do., 42 1/2¢; less than a carload discounts are 2 1/2¢ less than the rates above quoted; Boiler Tubes, 55¢ off regular list; Oil-Well Casing, 45¢ per foot, net; 2-inch Oil-Well Tubing, 14¢; 8-inch Drain Pipe, \$1.30 per foot. The new mill at Soho owned by Moorhead Co. and Lindsay & McCutcheon, of this city, and Crane Bros., of Chicago, will, it is expected, be ready for business next month.

Old Rails.—The Old Rail market is scarcely as strong as it was four weeks ago; the last sale reported here was at \$21, but we hear of sales having been made during the week at \$20.50, delivered at mill in Mahoning Valley. Old Steel Rails are quoted nominally at \$21 @ \$22 for short and long lengths.

Steel Rails.—There is considerable inquiry, especially for small lots for near-by delivery, and the market is firm at \$36 @ \$37, cash, at mill. Some small sales for near-by delivery are reported at \$37. If the sale of English Rails at \$39, delivered at Galveston, is correct, it would indicate that American Rails are not likely to go any higher. The American mills are nearly all sold up for the present year.

Steel.—There has been no important change in the situation during the past week; business only fair, while prices remain unchanged. Best brands of Tool Steel, 8¢ @ 9¢; Crucible Machinery, 3 1/4¢ @ 4¢; Open-Hearth do., 2 1/4¢ @ 2 3/4¢; Bessemer Blooms and Billets, \$31 @ \$33; Nail Slabs, \$30 @ \$31.

Railroad Track Supplies.—There is a fair demand; no change in prices: Spikes, 2.40¢, 30 days, delivered; Splice Bars, 1.65¢ @ 1.75¢; Track Bolts, 2.75¢ with Square and 2.85¢ @ 3¢ with Hexagon Nuts.

Old Material.—No. 1 Wrought Iron fairly active, with sales at \$18 per net ton; Wrought Turnings, \$13 @ \$14; Old Car Axles, \$23; Cast Borings, \$12, gross ton; Old Car Wheels, \$16 @ \$16.50, gross. Old Wheels are worth more West than in this market.

Chicago.

Office of The Iron Age, 36 and 38 Clark St., Cor. Lake St., Chicago, June 7, 1886.

Business during the past week was undisturbed in this city and vicinity in all lines of trade, save that of the Calumet Iron and Steel Co., at Gummings, Ill. Notwithstanding the strenuous efforts of the company to get their works in operation, they have been unable to get more than about half their capacity of the Nail works running. They made a number of attempts during the week to move four carloads of Nails that have been standing on the side track for quite a long time, and in each case have been opposed by the men, women and children of the town. No damage has been done except the removal of couplings and sections of track at times when the guards were not present. Two of the cars were taken out on Saturday and another attempt will be made to remove the other two to-day. The condition of trade in general has shown some points of improvement since the first of the month, and the prospects of its continuing at a higher average during the summer are quite satisfactory. Crop reports are beginning to have a small influence on trade, and it is noticed that the shipments of merchants are the largest to sections where wheat is making the best appearance. The rumor that the Southern Pacific Railroad Co. have made a contract for Foreign Steel Rails, deliverable at New Orleans, freight and duty free, at \$39 per ton, is not received with much favor by the

manufacturers of American Rails. Manufacturers of nearly all classes of Iron are more or less agitated over the probable disturbances that may arise about July 1 in connection with the iron-workers. The past labor troubles are a little too fresh in the minds of manufacturers of finished articles to announce entire restoration of trade, but there is undoubtedly a better feeling, and more confidence is visible in their purchases, but they are not disposed to go beyond immediate necessities. To sum up the situation it may be said that the whole outlook is decidedly more cheerful, and, providing no new outbreaks occur, there is every reason to anticipate a good summer and fall trade.

Hardware.—Jobbers report that the sales of Hardware thus far have been unprecedented for June. Should sales continue for the balance of the month at the same rate it will be the best June in the experience of many old jobbers. The week was somewhat broken into in shipping departments by the observance of last Monday. There has been no unusual demand for any lines of articles, and no striking features in the trade. Prices are said to be fairly firm, with continued intimations of higher lists on many staple lines of goods. A rumor was circulated at the close of the week that a break in the Grindstone combination had occurred, and leading jobbers were surprised at prices quoted by some manufacturers.

Barb Wire.—The conditions of the Barb-Wire market remain about the same as last reported. Jobbers continue the quotation of 3 1/2¢ on Painted Wire and 4 1/4¢ on Galvanized. The demand is greatly diminishing, and trade is considered over until after harvesting. Prices named rule as a general quotation on small lots, though in large quantities it is possible that some irregularity may be seen. The manufacturers' association held another meeting last week, during which the formation of the United Wire Co. on the pool basis was discussed. Mr. C. O. Collins, the secretary, reports the meeting as being entirely harmonious and that a manufacturing capacity of 87,500 tons was represented or, in other words, that 70 % of the Barb-Wire manufacturers had signed the agreement to lease their plant to the incorporated stock company. Several of the largest manufacturers have not yet signed their willingness to associate themselves with the pool, and a committee was appointed to bring them in. It is said that the printed agreement was accepted, with the exception of several technicalities which were changed to meet the objections. Those who have signed entertain the hope that the pool will be consummated, but they unfortunately are not the parties whose interests are most largely affected.

Nails.—The Nail market appears to be considerably more firm than a week ago. The demand has materially increased, and jobbers found it more desirable to obtain stock on as favorable a basis as they could at the close of last month. The renewed alliance of the nailers with the Amalgamated Association is having its influence upon makers, who refuse to accept orders at less than 2¢ rates, Chicago. Jobbers quote Iron Nails from store, in small lots, at \$2.10, and Steel Nails at \$2.20. It is said that this price is shaded 5¢ in carload lots, 2¢, 60 days. We understand, however, that some of the leading jobbers have given imperative orders that no sales shall be made at less than prices named. Stocks in this market are said to be light, and a little uneasiness is seen among the trade because they did not place contracts 10 days ago. A meeting of the makers will be held in this city this week, when some important changes are expected.

American Pig Iron.—There is no material change in the Pig-Iron market. Sales agents report a steady trade in small lots for the week, but do not report an increase over the week previous. The fact is that the dull period in the Pig-Iron market is approaching, and there is very little to look forward to until the Agricultural Implement makers commence buying, except such lots as will be wanted for special work which will come into the market only after contracts for work have been secured. The contracts for about 8000 to 10,000 freight cars which are to be let soon bring prominently before the sales agents large tonnage of Pig Iron that will be wanted for the wheels. While it is evident that on carload lots \$20 @ \$20.50 for Lake Superior Charcoal is a fair quotation, the sale of such lots as the above would require may shade prices. There is no disposition on the part of foundrymen to make concessions in the present state of trade. The market for all grades of Iron is much more firmer than one would expect to find it when so few sales are made. Makers of Coke Iron continue to reiterate that there is no room for shading of prices on that brand, and that the quotation of \$19 @ \$19.50 in carload lots is bottom and scarcely affords them a living profit. Sales of Open-Hearth and Bessemer Iron are made on a basis of \$20.50 for the best grades, and shaded down to \$19.50 @ \$20, according to quality. No sales of Cinder Mixed are reported, and a nominal quotation would be from \$18 to \$19, according to quality and quantity. There appears to be no demand for Southern Irons, and consequently figures named are irregular. Quotations made by sales agents are of that character that one cannot tell what the exact market price is. A week ago we advanced our quotations 50¢ per ton to satisfy those who claimed that they would not sell

at less than figures named. Since then those who are in a position to know hold that the iron could be bought at a fraction below our nominal quotations, which are \$17.50 @ \$18 for No. 1 Foundry, \$17 for No. 2, and \$15.50 @ \$16.50 for Nos. 2 1/2 and 3, cash. The quietness in the foundry trade, and the little demand for crude irons does not invite strong competition, so that every movement made is done with a view of bridging over the present dull period. While there is really nothing in the immediate future to encourage the hope of better prices, the prospect is certainly brighter for a good trade in the fall season than heretofore. If furnacemen are financially strong enough to pile up the iron that is accumulating and hold it off the market until the demand comes there is nothing further visible now that will cause a retrograde movement in the market.

Merchant Steel.—Trade in general is reported quiet, but improving. There has been a fair demand in small orders for Machinery Steel and some increase in the demand for Tool Steel from local consumers. Country merchants are not placing any heavy orders, and very few of them have courage enough to stock up. There continues to be a very good demand for Drill Rods and the finer grades of Steel from mining districts. Makers of Steel Castings are scouring the country for orders and are meeting with considerable success. There are no changes in price from those last noted.

Steel Rails.—Makers continue the nominal quotation of \$38 for first quality, \$34.50 for seconds and \$40 @ \$42.50 for light weights. There appears to be no change in demand, and mills report the usual number of inquiries for late fall delivery.

Bar Iron.—For the better grades of Bar Iron the market shows some improvement over the week previous. Some of the large consumers have placed specifications slightly in excess of their wants, and merchants are inclined to stock up in a small way. From store we quote Best Refined New Puddled at 1.85¢ rates, and from mill at 1.70¢ @ 1.75¢. Common Iron from Old Rail stock is quoted from store at 1.75¢ rates, and from mill at 1.55¢ base. The market is so very irregular and depends so much upon quality that it is impossible to get a figure that will answer for all grades of iron. Mills, however, appear more firm and are not inclined to accept orders for delivery after July 1. Jobbers, upon the other hand, are in a quandary about buying. They have been caught several times with heavy stocks on the supposition that a strike would occur. Much of the business in the Bar-Iron trade for the balance of the month will depend upon the position as it develops between manufacturers and their workmen.

Structural Iron.—A good many small orders for Beams are coming in from the country, which are supplied from yard. Nothing new has developed in the way of large contracts, and from present appearances it would seem that manufacturers will have scarcely sufficient work to keep them running during the next two months. There appears to be more activity in iron for bridge work than in building shapes.

Black Sheets.—Manufacturers are pressing sales for delivery during June and July, which jobbers continue to hold off on the ground that they will be able to obtain all they need from stocks now on hand, even should there be a stoppage of the mills after that date. Prices are weak and on light grades are quoted from store at 2.50¢ for No. 24; 2.90¢ for Nos. 25 and 26, and 3¢ for No. 27. Best Refined grades are quoted 20¢ above these prices.

Galvanized Iron.—The same conditions that governed the market for the last three weeks continue. Cornicemen are having perhaps a little more work, but not enough to make any impression on the market. Jobbers quote from store 60 and 5¢ off on Juniata, and 60 and 10¢ and 5¢ off on Charcoal.

Old Rails.—Buyers of Old Rails have dropped another 50¢ and are now quoting \$18.50, Chicago delivery. The North Chicago Rolling Mill Co. quote \$19, Milwaukee. It is believed that some good round lots could be sold at \$17, but holders are unwilling to accept the price, while manufacturers contend that it is all they can afford to pay for conversion into Bar Iron.

Chattanooga.

Office of The Iron Age, Carter and Ninth Sts.,
CHATTANOOGA, June 7, 1886.

There have been no particular events nor changes in business since our last report to call for particular mention. Everything appears to be moving along in about the same old rut. Merchants complain of dull times and collections hard to make, which is of course to be expected at this time of the year, when every one in the agricultural business is fully engaged on his farm and spends as little time or money outside of his home as possible. There are two sources, however, from which considerable activity and business stir are being derived, and these are the boom that is occurring in all the manufacturing centers in real estate, and the activity that is being imparted in consequence of the number of new manufacturing enterprises that are being agitated, many of which are taking such shape as to insure that they will be brought to maturity at an early day. The railroad building that is being done in the South appears to be of a solid and permanent character.

Pig Iron.—Little can be said interesting to either producer or consumer as to the condition of the market. Since the roads have got into some kind of shape again after the change of gauge Pig Iron has been moving more freely, but there are yet large stocks which have been in the yards awaiting shipping facilities, which will be increased from day to day, as all the lines are pushing the changing of the tracks to the standard gauge as fast as possible. In regard to the condition of the market there is certainly a more spirited inquiry. Since the adjustment of the labor troubles some important transactions may be noted for points in the Northwest, while the shipments to Eastern points remain about the same, and are running from 4000 to 5000 tons per month. The fact is that there are certain furnaces in the South that have at no time been troubled about finding a market for their output. Such has been the uniform good character of their iron that they have regular customers who are but too willing to contract for their entire output at the top of the market figures. It would be difficult at the present time to give correct quotations as regards prices, but some estimate may be made of the condition of the market from the sales of round lots at prices ranging from \$13.80 to \$14.50, net, at the furnace, for No. 1, and \$11.50 @ \$12 for No. 3.

Railroad Supplies.—The demand for supplies for the construction and repair of railroad lines has been brisk, and all the manufacturers that are making a specialty of these articles have had all they could do to fill their orders. Especially is this so for Spikes and Fish Plates. Castings for the repairs of cars are yet in demand, and many of the foundries have all they can do in this line.

Pipe.—The demand for this article keeps up fully to any period of the past, while prices have receded a little in sympathy with the price of Pig. The parties of whom mention was made some time since who are moving in the matter of new Pipe works at this point are progressing with their undertaking as fast as an economical expenditure will permit, and they expect to be in full operation some time during the commencement of the coming year. Their plant and machinery will probably be the most perfect for economical and rapid output of Pipe of any concern in the world, which will enable them to offer Pipe at such prices as defy competition.

Miscellaneous.—There never has been a time in the history of the iron-making business of the South when more capital was being invested in furnaces. There are now no less than six new furnace plants in the course of erection in what may be termed the "Southern Iron district," ranging from 50-ton Charcoal to 125-ton Coke furnaces, which, when completed, will put on the market no less than an average of 10,000 tons per month.

Birmingham.

BIRMINGHAM, ALA., June 7, 1886.

Business is in a somewhat chaotic condition, in consequence of the change of railroad gauge. All the tracks have been reduced, but a good proportion of rolling stock still awaits the change, and as there are never cars enough to do the business expeditiously the increased shortage is quite a serious matter. The three trunk lines running to this place had some 2500 cars to change, and as only one of the lines has adequate shops here the progress of the work has not been very rapid. In one company's yards there are now nearly 1500 cars, almost all of them loaded and a good many awaiting the change. So far as depends upon their own rolling stock the industrial concerns about here are all working smoothly again. Jobbers seem to have had a little better trade for the last two weeks. As for the trade of this city two very pleasing facts are to be noted—one is that the best summer custom it has ever had is assured to it for the season now opening; the other is that it is constantly extending its business at the expense of its older rivals. Progress in the latter of these matters, however, like nearly every other question of competition in this part of the country, is dominated by freight rates. The lines in which Birmingham is able to enter new territory are almost always those in which she enjoys some special favors from the railroads. In the matter of better shipping facilities, the example of the active work done about Birmingham seems contagious. Montgomery has made up a \$30,000 bonus required by Northern capitalists who propose to complete the Montgomery and Florida Railroad, and part of the extension has been located; and it is authoritatively announced that the Sheffield and Birmingham road is to be pushed through now. Meanwhile the locating survey on the Birmingham and Memphis road (the Kansas City Line) has begun, and another stretch of some 25 miles is almost ready for bidders on the Memphis, Birmingham and Atlantic.

Pig Iron.—Is in considerably better demand than it was two weeks ago. Especially does the effect of the recent slight reduction of freight rates to the West show itself, though from all quarters there is a satisfactory volume of inquiry. Small lots are wanted as a rule, it is true, and prices do not move, but manufacturers are pleased with the promises for more remunerative business. Average net prices at the furnace are: No. 1 Foundry, \$15; No. 2, \$14; No. 1 Mill, \$13; No. 2, \$12. The new furnace projects constitute the staple of news herabouts. The De Bardeleben Coal and Iron Co. have stopped work on their grounds at Jonesboro, and the managers decline to say why, but on the outside it is suspected they have concluded that there is a better prospect nearer this city for their two furnaces. The Sheffield Furnace Co. have contracted with J. P. Witherow, of Pittsburgh, for a 100-ton furnace, to be built right away. Accounts come from Anniston of a considerable increase in the output of some of the Charcoal furnaces of that region.

Finished Iron.—Signs of a better demand are to be seen about the rolling mills, too, and prices are a shade better. The improvement seems to have other bases besides the provident disposition buyers usually show as the time approaches for the adoption of a scale of wages for the year.

Nails.—Are down some 20¢ since they were last reported in this correspondence; \$2.25 is now the Brierfield and Helena card rate. Steel Rails come 20¢ higher. There is a demand for both kinds such as does not often exist coincidentally with a decline of prices.

Cast Pipe.—Finds easy sale at the prices of the last six months—\$27 @ \$30 1/2 ton. Part of the production of this place goes to a competitor in a neighboring city that has orders beyond its capacity.

Miscellaneous.—The shops continue to enjoy such a run of business as not to feel very seriously the loss of the railroad work that has been engaging everybody for several weeks. One concern has an order for an iron bridge to go to North Carolina. Another has a business-like inquiry from New York City in regard to a patented specialty.

Coal and Coke.—Operators report more inquiry for Coal than there ever was before at this time of the year, and certain of them are asking a slight advance. With only the ovens now in operation and those in course of construction the supplying of the Coke trade of next fall will be something of a problem. The new furnaces going up or assured will require something like 100 cars of Coke a day.

Cincinnati.

JUNE 7, 1886.

Pig Iron.—In the past week there has been some increase of demand for immediate use. It is reported that some orders for round lots have been placed for current delivery through the coming three or four months, mostly foundry grades, at prices within quotations below. The larger portion of the production of the Western and Southern furnaces is distributed through dealers here to consumers in the South, West, North and East of the United States and Canada. Reports from their statistics and the present aspect of business indicate that there is not now, nor will there be, any considerable accumulation of stocks in the coming two or three months, and that present prices will be sustained. Quotations of sales in the past week, f.o.b. here or less freight to Cincinnati when orders are filled direct from furnaces, customary discount of 40¢ or 50¢ 1/2 ton from time prices for cash, are as follows:

Charcoal Foundry			
Hanging Rock, Best, No. 1, 4 mos.	\$21.00 @	\$21.50	
Hanging Rock, Good, No. 1, 4 mos.	20.00 @	20.50	
Hanging Rock, Good, No. 2, 4 mos.	18.50 @	19.00	
Southern No. 1, 4 mos.	18.00 @	18.50	
Southern No. 2, 4 mos.	17.50 @	18.00	
Coke Foundry			
Southern No. 1, 4 mos.	17.00 @	17.50	
Southern No. 2, 4 mos.	16.00 @	16.50	
Ohio and West Pennsylvania, No. 1, 4 mos.	18.00 @	18.50	
Ohio and West Pennsylvania, No. 2, 4 mos.	17.00 @	17.50	
Southern—Virginia, Tennessee, Alabama and Georgia, No. 1, 4 mos.	17.50 @	18.00	
Southern—Virginia, Tennessee, Alabama and Georgia, No. 2, 4 mos.	16.50 @	17.00	
Close Foundry and Mill grades.	14.50 @	15.00	
Silver-Gray Softeners			
Ohio Stonecoal, No. 1, 4 mos.	17.50 @	18.00	
Ohio Stonecoal, No. 2, 4 mos.	16.50 @	17.00	
Ohio Stonecoal, No. 3, 4 mos.	15.00 @	15.50	
Car-Wheel			
Southern Warm-Blast Char'l, cash	17.50 @	18.00	
Southern Standard, Warm-Blast	23.00 @	23.50	
Hanging Rock, Warm-Blast Charcoal, 4 mos.	19.00 @	19.50	
Hanging Rock, Cold-Blast Charcoal, 4 mos.	23.50 @	24.00	
Southern Cold-Blast Charcoal, 4 mos.	25.00 @	25.50	
Maryland and Virginia.	27.00 @	27.50	
Forge			
Southern Coke, Neutral, 4 mos.	15.00 @	15.50	
Southern Coke, Cold blast, 4 mos.	14.00 @	14.50	
Southern Coke, low grades.	13.50 @	14.00	
Other makes, various grades	15.00 @	15.50	
Scrap			
Rails.	20.00 @	20.50	
Wheels.	15.50 @	16.00	
Wrought, for range of grades, 1/2	10.00 @	10.50	
Cast, for range of grades, 1/2	30.00 @	30.50	

Louisville.

W. B. BELKNAP & CO., Louisville, write as follows, under date of June 7: It is never safe to set one's expectations high for June business, and if any one, forgetful of the past, has done so this year, he is apt to be the victim of disappointment. Orders are not large, but are numerous enough to justify the belief that the bottom has not dropped out of everything yet awhile, that the country is in a healthy state, and to foster hopes for something better in the succeeding months when fall trade begins to manifest itself. Reports from the agricultural districts continue to be reassuring, and there is no reason to doubt the ability of the farmer to buy new goods and pay his debts this year. Enterprise, too, is not lacking, and as the labor troubles cease to cut much figure in civic economy, building is again under way and capital reaching out for investment.

While conventions of various kinds seem to be the order of the day, their resolutions and suggestions as to how to regulate the universe will have little weight against the unalterable laws of trade and society.

Bar Iron.—Is still dull, but fairly firm. There are no concessions of any consequence being offered on any hand.

Sheet.—Is in little better demand, as buyers are making their inquiries for summer and early fall deliveries. Few contracts are being taken where the deliveries extend much beyond the next 30 days.

Nails.—As the price has sunk down to what is believed by most to be the cost of production or below, there is more activity in this great staple. A good many buyers now feel safe in putting them away for future wants. But this demand is not strong enough to strengthen the market.

Wire Nails.—Continue to be used in fair quantities, but since the decline in the price of Cut Nails, while the price of Wire Nails is maintained at previous figures, the comparison of advantageous weights and counts has somewhat faded out of sight, and we hear less of the Wire Nails supplanting the Cut.

Wire.—The Wire market is dull, but still there is enough moving to keep the situation more or less interesting for those who deal in the article. Plain Wire has been wonderfully upheld, and the manufacturers of Barbed Wire whose contracts are at an end declare there must presently be more or less concessions made by the mills.

GEORGE H. HULL & CO., of Louisville, report to us as follows, under date of June 8: The Pig-Iron market continues to be irregular. Some furnaces seem to be anxious to sell at prices that other furnaces positively decline to accept. Sales, however, have been made at prices lower than last week, and we revise quotations in accordance with same. The stock of iron at Southern furnaces still continues only moderate, most manufacturers shipping their surplus to Eastern seaboard cities. It seems to sell about as fast as put on the market. We quote for cash in round lots as below:

Pig Iron			
Southern Coke, No. 1 Foundry.	\$16.50 @	\$17.50	
" " " " " "	15.50 @	16.50	
" " " " " "	15.00 @	16.00	
Hanging Rock Coke, No. 1 Foundry.	16.50 @	17.50	
Hanging Rock Charcoal, No. 1 Foundry.	18.00 @	19.00	
Southern Charcoal, No. 1 Foundry.	17.50 @	18.50	
Silver Gray, different grades.	14.50 @	15.50	
Southern Coke, No. 1 Mill, Neutral	14.50 @	15.00	
" " " " " "	13.50 @	14.00	
" " " " " "	14.00 @	14.50	
" " " " " "	17.00 @	17.50	
" " " " " "	12.00 @	13.00	
White and Mottled, different grades	25.00 @	26.00	
Southern Car-Wheel, standard brands.	21.00 @	22.00	
Southern Car-Wheel, other brands	20.00 @	21.00	
Hanging Rock, Cold-Blast.	25.00 @	26.00	
" " " " " "	30.00 @	31.00	
Old Material			
Rails, 1/2 ton.	\$20.00 @	\$20.50	
Wheels, 1/2 ton.	14.00 @	14.50	
No. 1 Wrought, 1/2 ton.	85 @	90	
No. 1 Country Wrought, 1/2 ton.	70 @	80	
No. 2 Country Wrought, 1/2 ton.	50 @	60	
No. 1 Cast, 1/2 ton.	45 @	55	
Boilers, cut, 1/2 ton.	60 @	65	
Boilers, uncut, 1/2 ton.	40 @	50	
Flues, Tanks and Sheets, 1/2 ton.	25 @	35	
Axles, 1/2 ton.	90 @	1.00	

St. Louis.

ROGERS, BROWN & CO., St. Louis, W. H. SHIELDS, manager, report, under date of June 7: There is a little more inquiry from the general foundry trade, and the machine shops report more or less business in sight. We quote, cash, f.o.b. St. Louis:

Charcoal Foundry			
Missouri.	\$17.00 @	\$18.50	
Southern.	17.50 @	18.50	
Coke and Coke Foundry			
Southern, No. 1.	18.25 @	18.75	
Southern, No. 2.	17.25 @	17.75	
Ohio Softeners.	17.00 @	18.00	
Mill Iron			
Missouri.	16.00 @	17.00	
Southern.	15.00 @	16.00	
Car-Wheel and Malleable Irons			
Southern, No. 1.	20.00 @	25.00	
Lake Superior.	21.00 @	23.00	
Scrap, &c.			
Old Wheels.	15.00 @	16.50	
Connellsville Coke (East St. Louis).	5.00 @	5.50	

Detroit.

CHARLES HIMROD & CO., dealers in Pig Iron, Detroit, Mich., report, under date of June 7, as follows: The market has been an active one during the past week, the number of small sales aggregating a large tonnage. This is a great contrast to 30 days ago, and, judging from the present indications, the prospects for the future are also excellent. We learn of one or two quite large contracts having been just made for cars, which were stopped or postponed on account of labor troubles, which now are considered fully adjusted. These contracts have been let during the past week. There are others coming up in the very near future, and the signs of the times are more encouraging every week. Notwithstanding the present activity there has been no particular change in prices yet, and we are obliged to repeat our quotations of a week since, which are as follows:

Lake Superior Charcoal, all numbers			
Lake Superior Coke, All Ore.	\$22.00 @	\$22.50	
Lake Superior Coke, Cinder Mixed.	20.25 @	21.00	
Standard Ohio Blackband.	20.00 @	21.00	
Southern No. 2.	17.00 @	17.50	
Southern Silvery, Open.	17.00 @	17.50	
Southern Silvery, Close.	16.50 @	17.00	
Jackson County, Ohio Silvery.	18.00 @	18.50	
American Old Iron Rails.	20.00 @	22.00	
Old Wheels.	16.00 @	17.00	

Coal Market.

There is no price for Anthracite Coal in the present state of the market, which is extremely dull, especially for the domestic sizes, such as Egg and Stove. For Pea and other sizes used in manufacturing prices are tolerably stiff. The general situation corresponds with that usually experienced at this season, as the "winter of our discontent" among Coal dealers is felt most keenly with the approach of hot weather. "There is any price for Coal," says one, "according to

grade, quality, where and when delivered, how much, &c." It is not wide of the mark to say that Coal can be had for \$3.20 @ \$3.25 1/2 ton, or even for \$3.10, the latter individual Coal, but company Coal cannot be had for less than \$3.20. That is to say, while higher prices are asked, \$3.10 or \$3.20 would not be refused. Selling prices for choice Lehigh are about \$3.50 @ \$3.75. The regular price asked for Reading is \$3.65.

Bituminous Coal may be quoted \$3.10 @ \$3.25, although there are some grades which may be had as low as \$2.75, f.o.b. Wages questions are more or less a source of disturbance in the mining regions. The Philadelphia Ledger says: "Fully one-half of the total loss of tonnage caused by the strikes in the Bituminous Coal regions has been made up by increased shipments of Gas Coal, Coke and Anthracite Coal. The Soft Coal traffic of the Pennsylvania Railroad is the largest single item of its freight business. Total tonnage of Coal and Coke passing over the main line of that road thus far this year has been 5,766,908 tons, or about 400,000 tons more than during the corresponding period of 1885, and of this increase only 222,000 tons were Coke."

The total amount of Anthracite Coal sent to market for the week was 406,825 tons, compared with 476,608 tons in the corresponding week last year, a decrease of 69,783 tons. The total amount of Anthracite mined thus far in the year 1886 is 12,029,402 tons, compared with 10,248,153 tons for the same period last year, an increase of 1,781,249 tons.

By an explosion of mine gas at one of the collieries of the Lehigh Valley Coal Co. on Monday several men were fatally injured. At Carmel the breaker of the Alaska Colliery, operated by the Reading Coal and Iron Co., was burnt on Saturday evening; loss, \$100,000. The new structure will be the largest and most finely equipped of any in the region. The National Powdered Coal Supply Co. is the name of a new corporation to crush Coal for fuel.

Imports.

The following were the Imports of Hardware, Iron, Steel and Metals into the Port of New York for the week ending June 9, 1886:

Hardware.		Naylor & Co.
Baker Hermann & Co.	Hardware, cutlery and guns, pkgs., 8	Pig, tons, 560
Brown Bros. & Co.	Chains, cks., 27	Spiegel, tons, 90
Burkshaw W. C.	Cases, 2	Stetson Geo. W. & Co.
Clark G. A. & Co.	Mach'y, cs., 250	Pig, tons, 200
Davis, Turner & Co.	Cases, 3	Order.
Delamonte L. & Co.	Mach'y box, 1	Spiegel, tons, 1545
Dumont W. H. & Co.	Case, 1	Pig tons, 100
Field Alfred & Co.	Cases, 2	Wire r'd coils, 40,377
Folsom H. & D.	Arms, cs., 5	Spiegel, lot, 1
Frasse P. A. & Co.	Mdse., cs., 2	Old fish plates, lot, 1
Gerard Otto.	Mdse., cs., 2	Coiled rods, bds., 365
Graf Cutlery Co.	Case, 1	
Hartley & Graham.	Arms, cs., 7	
Lau J. H. & Co.	Arms, cs., 4	
Levy, Dreyfus & Co.	Pkgs., 4	
Maitland, Phelps & Co.	Mach'y, box, 1	
Moulson John.	Cases, 2	
Pollman A.	Case, 1	
Rosenberg M. & Co.	Case, 1	
Rylands T.	Mach'y, cs., 6	
Sellers W. B.	Cutlery, cs., 3	
Shoverling, Daly & Gales.	Mdse., cs., 6	
Singer Mfg. Co.	Mach'y, cs., 3	
Sunfeld, Lorsch & Co.	Pkgs., 25	
Taylor Thos.	Cases, 3	
Ward Aaline.	Cutlery, cs., 6	
Wiebusch & Hilger.	Hardware and cutlery, cs., 36	
Witte John G. & Bro.	Cases, 18	
Order.	Mach'y, cs., 6	
	Needles, cs., 3	
	Cases, 6	
Iron.		
Baring Bros. & Co.	Ore, kg., 850,000	
Brookner, Evans & Co.	Wire net'g, rolls, 136	
Brooker	Pig, tons, 100	
	Spiegel, tons, 580	
Ferch, Desp. Co.	Wire, cs., 16	
Gorton, Bliss & Co.	(galv. sheet), cs., 25	

Trade Report.

General Hardware.

With the moderate demand that prevails a firm feeling characterizes the market, and prices in most lines are well maintained. In the existing uncertainty as to the cost of labor and materials manufacturers are pursuing a cautious and conservative course, avoiding the accumulation of heavy stocks, and are not desirous of accepting heavy orders at prevailing prices. The business of May is generally reported as comparing favorably with that of the same month of last year, the aggregate being in many instances larger than was anticipated. Collections are better. An improved tone is perceptible, and the outlook is regarded hopefully.

NAILS.

There has been considerable business during the week under review, a part of it being for delivery during June and July at current rates. It should be noted, however, that probably more of such inquiries are rejected than are accepted, and the greater majority of the mills prefer to book only for immediate delivery at what they consider so ruinously low prices that they cannot long prevail. The quotations for carload lots in dock are unchanged.

BARB WIRE.

Only a moderate business is being done. Eastern manufacturers quote 4 1/2 cents for carload lots of Four Point Galvanized Barb Wire and 4 3/4 cents for small lots.

MISCELLANEOUS PRICES.

The Medina Mfg. Co., Samson & Swett, proprietors, Medina, N. Y., are issuing circulars illustrating recent additions to their line of Door Hangers, which represent the Orleans and the Samson and also the Hinge Adjustable Stay Roller. The company are thus offering to the trade an exceptionally extensive line of these goods, of which a large variety of patterns are made suited to the different requirements of the trade. They are also agents for the Moore Mfg. Co., Chicago, Ill., for the East, including the States of New York, Pennsylvania, New Jersey, Delaware, Maryland, and the New England States, and refer to the fact that they are so situated that they can reach all the Eastern trade at a low rate of freight, and also serve them by prompt shipment of goods. The following quotations will be of interest as showing the line of goods they are making, with the prices:

Samson, Steel, Anti-Friction.....	55
Orleans Steel.....	55
Hamilton, Wrought, Wood Track.....	55
U. S., Wood Track.....	55
Champion.....	60
Rider and Wooster, Medina Mfg. Co. list.....	70
Climax Anti-Friction.....	55
Climax, Steel, Anti-Friction.....	50
Zenith, for wood track.....	55
Check Back, New England pattern.....	70
Off-Set Check Back.....	70
Round Groove or Western pattern.....	70

Their Hinge Adjustable Stay Roller is made under a recent patent and has a hinge under the roller, so that it can be adjusted to any thickness of door by opening or closing the hinge. It is sold at \$2.40 per dozen, subject to a discount of 50 per cent.

Walker's Standard Wrenches, made by the Walker Wrench Co., 90 Chambers street, New York, a description of which was recently given among the Hardware Novelties, are sold at a discount of 60 and 3 per cent. for cash, and the Pipe Attachments are sold from the following list at a discount of 50 and 3 per cent. for cash:

Size	10	12	15	18	21	24	30	inch.
Price \$10.00 11.00 13.00 15.00 18.00 24.00 40.00 per doz.								
The following is the price list of the Triumph Winger Co., Keene, N. H., which is subject to a discount of 50 per cent., with 5 per cent. additional for cash in 10 days:								
	Per doz.	Victor.....	Per doz.					
Triumph.....	\$34.00	Victor.....	\$32.00					
American.....	51.00	Leader.....	48.00					
12 inch, 75.00 per dozen extra.								
11 inch.....	\$15.00							

The Acme Shear Co., Bridgeport, Conn., are calling attention prominently to the new Cast Ajax Timmers' Shears, which are intended to meet the demand for an inexpensive article of this kind. The Shear is described as carefully made, well finished, the general appearance being as good as a Steel Shear. Special attention is called to the fact that the edges are chilled so as to be as hard as Steel, thus making it, it is claimed, equal to Steel goods in cutting quality. The low price at which it is sold will commend it to the trade, and farmers, mechanics and others who do not feel justified in buying an expensive Shear. The following are the prices, subject to a discount of 65 1/2 per cent.:

Length of cutting edges, inch.....	2	3 1/2	3
Price per doz.....	\$12.00	15.00	18.00
The prices of Files are somewhat unsettled, and manufacturers are shading previous quotations. Some of the companies who have hitherto been well supplied with orders are more desirous of securing business than they have been.			

There is no special change in current quotations on Steel Goods, but the probability is alluded to that an advance will be made before long on account of the increased cost of the materials used in their manufacture—Steel Handles Ferrules, &c.

Scythe Snaths and Cradles are manifesting some irregularity in price, as the jobbers are in some instances offering inducements to purchasers. The same remark applies to Scythes.

The quotations on Pumps are slightly higher than they have been for some time, some of the manufacturers of the cheaper grade having discontinued producing them on account of the unprofitable prices, and others who are still actively in the market naming higher prices.

There is no material change in the condition of the Screw market, prices remaining nominally as they have been, but extras from some of the companies are obtained more freely and frequently. In the present state of the market many careful retailers are able to obtain 5 per cent. or 7 1/2 per cent. beyond the regular printed prices.

Scandinavian Padlocks are offered at extremely low quotations, and it is intimated that there is some prospect of an advance in the near future.

We give below the list prices of the Paragon Anti-Friction Door Hangers, made by the Dunham Mfg. Co., Boston, Mass., for whom Lauderback, Gilbert & Co., 33 Chambers street, New York, are agents. Warehouse Hangers for barn and warehouse doors are sold from the following list at a discount of 50 per cent.:

No. 1, for door to run from 3 to 5 feet.....	\$15.00
No. 2, for door to run from 6 to 12 feet.....	18.00
No. 3, for door to run from 12 to 20 feet.....	28.00

The following Hangers and Rail are sold at a discount of 25 and 10 per cent.:

No. 4, Parlor Hanger, including track, 4 pieces, per set.....	\$6.00
No. 5, Japanese Horse Car, including track, per set.....	4.00
No. 5 1/2, Elevator Door, full nickel, including track.....	5.50
No. 6, Freight Car Hanger, complete for car, per set.....	6.00

The Custer Beam Works, Philadelphia, have reduced their prices on the Custer Beams, which are now quoted at a discount of 30 to 33 1/2 per cent. It is also intimated that they will furnish Polished Custer Beams at the same price as Japanese Custer. They are also making a full line of cast-steel Gas Pliers, nickel-plated, which are quoted at a discount of 60 and 5 per cent. The demand for the Custer Beam is referred to as very satisfactory, the sales this year thus far being ahead of those for the whole of last year.

The Hartford Rubber Works, John W. Gray & Co., proprietors, Hartford, Conn., are selling the Neptune Flexible Spray Hose Nozzle, described among our Hardware Novelties on page 25, at the following prices, subject to a discount of 50 per cent.:

Per dozen.	
3/4 inch and 1/2 inch, 3/4 inches long.....	\$6.00
1 inch, 3/4 inches long.....	10.00
1 1/4 inches, 3/4 inches long.....	15.00
1 1/2 inches, 3/4 inches long.....	30.00

The Rhode Island Horse Shoe Co., Providence, R. I., announce June 4, the following as their prices for the Perkins Toe Calks:

Blunt, all sizes, per pound.....	4 1/2 cents
Sharp, all sizes, per pound.....	5 1/2 cents
F. O. B., at mill at Valley Falls, R. I.	

The following discounts and net prices have been issued by the L. M. Ramsey Mfg. Co., St. Louis Mo., applying to their special catalogue No. 32:

Grass Snaths.....	40	Dis.
Hand Hay Rakes.....	35	33 1/2
Scythe Stones, Lake Huron, per box.....	\$1.00	
Scythe Stones, Berks Star, per box.....	1.25	
Scythe Stones, Golden Crown, per box.....	2.00	
Scythe Stones, Western Red End, per box.....	1.00	
Grain Cradles.....	40	30
Scythes.....	30	
Hay Knives, Clipper and Spear Point.....	45	
Hay Knives, Electric, per doz.....	9.00	
Hay Knives, Gem.....	4.00	
Farmers' Friend Sickle Grinder, doz.....	6.00	
Farmers' Friend Sickle Grinder, doz.....	5.50	
New Quincy Mower.....	40.00	
Trojan Mower.....	47.50	
Crawford Mower.....	45.00	
Hand Blue Grass Stripper.....	30.00	
Horse Blue Grass Stripper.....	30.00	
Mohawk Improved Hay Tedder.....	35.00	
Rumsey Improved Revolving Rake, 14-Tooth.....	3.40	
Rumsey Improved Revolving Rake, 16-Tooth.....	3.50	
Tiffin Improved Revolving Rake, 14-Tooth.....	3.30	
Tiffin Improved Revolving Rake, 16-Tooth.....	3.40	
Chieftain Horse Hay Rake, Wood Wheels.....	16.50	
Chieftain Horse Hay Rake, Steel Wheels.....	18.00	
Mohawk Hand Lever Sulky Rake.....	14.75	
Mohawk Self-Dump Sulky Rake.....	18.00	
Victor Double Acting Continuous Baler.....	10	
Nellis Genuine Harpoon Horse Hay Fork.....	2.75	
Nellis Patent Grapples, per set of 2.....	1.50	
Grapples and 1 Haples.....	1.50	
Nellis Two Wheel or Graduated Pulley.....	.30	
Nellis Dead Eye or Swivel Pulley.....	.25	
Nellis Fork Pulley.....	.30	
Wrought Iron Floor Hooks, per doz.....	1.00	
Double Harpoon Horse Hay Fork.....	1.25	
Meyers Grapple Fork, 2-Tine.....	3.50	
Meyers Grapple Fork, 4-Tine.....	4.85	
Meyers Rod Hay Carrier, No. 1.....	3.75	
Meyers Wood Track Carrier, No. 1.....	4.00	
Meyers Reversible Carrier.....	5.00	
Porter's Hay Carrier.....	5.00	
Rumsey Lever Straw Cutter, No. 3.....	3.00	
Rumsey Lever Straw Cutter, No. 2.....	4.00	
Lancaster Feed Cutter.....	5.50	
King Feed Cutter.....	6.00	
Copper Strip Feed Cutter, No. 1.....	7.50	
Copper Strip Feed Cutter, No. 2.....	11.50	
Sanford Hay and Straw Cutter, No. 2.....	5.00	
Boss Feed Cutter.....	4.00	
Mohawk Grain Register.....	7.50	
Little Hocking Valley One Horse Grain Drill.....	18.00	
Hocking Valley Two Horse Grain Drill.....	32.50	
Hocking Valley Runner Press Grain Drill.....	47.50	
Mohawk Rotary Disk Pulverizing Harrow.....	28.50	

ITEMS.

Joseph L. Raub, New London, Conn., in addition to the Pasteboard Targets for use in his automatic Magazine Target Trap, of which we gave a description in a recent issue, is about to put on the market a line of Clay Targets, which are intended to meet the demand for a Target that will break when hit. They are sold at \$7.50 per 1000, subject to a discount of 33 1/2 per cent., and are packed 500 in a box.

The catalogue of the Lovell Mfg. Co., Erie, Pa., illustrates the Wringers, Mouse

and Rat Traps which they are making, as well as the Keystone Roll-Up Spring Bed, which they are offering to the furniture trade. The Wringers include the Invincible, Princess, Phoenix and Old Reliable, and among the Traps the Delusion Mouse has a leading place. In the description that is given of the quality of their Wringers, reference is made to the quality of the Rolls, and especially to the Invincible, the Roll of which is alluded to as the very best that can be made.

The Sandwich Enterprise Co., Sandwich, Ill., have just issued a condensed price list of the Enterprise Wind Pumps and Fixtures.

Henry Hopkins & Co., 85 Chambers street, New York, issue a pamphlet entitled "Handy Notes and Queries," which contains a variety of useful information for dealers in Hardware, Stoves, Tinware, Gas Fitters' and Plumbers' Materials, &c. In its pages are found tables of weights and measures of the size, strength, &c., of Wire, Cordage, Wire Ropes, the sizes of Files and a variety of tabulated information in regard to the class of topics to which it relates.

Announcement is made that on May 12, 1886, the firm of Kohl & Leykom, Antigo, Wis., dissolved partnership, John Hessel, of Manitowish, Wis., having purchased H. A. Kohl's interest in the business.

We regret to learn of the destruction by fire on Sunday last of the entire works, excepting the rolling mill, of the Pennsylvania Bolt and Nut Co., Lebanon, Pa. This plant was exceptionally extensive and complete. This calamity the company announce leaves them unable to complete their unfinished orders or to accept new ones until they can rebuild. To this end their immediate efforts will be directed, and they intimate that they will be under way at the earliest possible moment. Until that time they hope to have the sympathy of their patrons and the return of their favors when they are in a position to receive them. They expect in the near future, with improved machinery, to commence again with even greater facilities than they have had in the past.

The Shelton Brass Hardware Co., Birmingham, Conn., for whom Topping & Fox are agents, 96 Chambers street, New York, issue a new illustrated catalogue, comprising an especially complete line of regular goods and novelties in Ship Chandlery. It includes, among other things, Ship Chandlery Hardware, Yacht Fixtures, Canoe Trimmings, Awning Hardware, Ice House Trimmings, Flag Pole Tips and Joints, Brass Eagles and Fancy Ornaments for Flag Poles. The line of their samples exhibited at 96 Chambers street is especially complete and attractive, and indicates something of the range and quality of their manufactures. They give special attention to fitting up yachts with Railings, Stanchions, Step Plates, Side Lights, Manhole Plates, Deck Ventilators, &c., and send competent men to take measurements and put work up if required. They issue special catalogues devoted to some of their leading lines.

Our readers will observe the announcement on page 30 of the United Service Trousers Stretcher, an article, the utility of which is there referred to. The wholesale depot for the supply of the trade is with J. C. McCarty & Co., 97 Chambers street, New York. This article, which is patented in England and in this country, is a decided novelty and worthy the attention of the trade.

The Gunn Hardware Co., Grand Rapids, Mich., which have been incorporated under the laws of the State of Michigan, have two houses, one jobbing and one retail, and will do a general wholesale and retail Hardware business. In the retail department they have purchased and succeed to the long-established house of W. S. Gunn & Sons, at 47 and 49 Monroe street. The jobbing house is in the building erected last year by W. S. Gunn, at Nos. 5 and 7 S. Ionia street, where the company will do an exclusively jobbing business. Its officers are: President, Edwin F. Uhl; vice-president and general manager, William S. Gunn; treasurer, William A. Gunn; secretary, A. S. Goodman; director, Frank W. Berles, and assistant manager, W. S. Coleman.

Notice is given June 1 that the copartnership heretofore existing under the firm name of W. H. Howell & Co., Geneva, Ill., has been dissolved by mutual consent. The business will be continued by the W. H. Howell Co., who assume the liabilities, and to whom accounts due the late firm are to be paid.

Announcement is made by Phipps & Burman, Birmingham, England, that two of their American patents covering Reversible Plates, Anti-Friction Roller Bearings and other improvements in Hair-Clipping Machines, have been sold to Lewis S. Lee, of Jesse Lee & Sons, Philadelphia, their sole agents, to whom it is requested that orders should be addressed, as owing to the change in the ownership of the patent any shipments made otherwise are liable to stoppage and confiscation in the United States custom house. Phipps & Burman also announce that they are perfecting important improvements in their patterns and machinery which will render their Clippers far superior in variety, quality and construction to any heretofore shown by themselves or other makers.

Wilcox & Howe, Birmingham, Conn., issue a new and enlarged catalogue, in which they illustrate their varied and staple

line of Carriage Hardware and Trimmings. They call particular attention to their specialties in Forged Carriage Irons, which are claimed to be unexcelled—namely, Body Loops, Couplings, Fifth Wheels, Joint Ends, King Bolts, Stump Joints, Reach Plates, Reach Sockets, Stay Ends, Offsets, Step Pads and Finished Steps. They also announce that they are paying special attention to the filling of orders for export. The pamphlet, which is well arranged and fully illustrated, has some 200 pages devoted to the exhibition of this line of goods.

The catalogue of the Tool department of the Detroit Steel and Spring Works, Detroit, Mich., for whom the Ross & Fuller Association, 33 Chambers street, New York, are agents, is an attractive pamphlet representing an extensive variety of Railroad, Blacksmiths', Mining, Stone Cutters' and Wood Choppers' Tools, the alternate pages being left blank for memoranda. In the introductory notice to the trade it is intimated that these Tools are to be furnished of superior quality, style and finish, all warranted Tools being made of their own cast steel. Their Tool plant is referred to as entirely new and as having been designed by Horatio Barr, late of Pittsburgh, under whose supervision it will be operated.

The Shepard Hardware Co., Buffalo, N. Y., are putting on the market a new sad-iron heater called the Dome, for use with gasoline and oil stoves. By means of it three irons instead of one are brought into contact with the flame.

The Wire Goods Co., of Worcester, Mass., announce that they have made arrangements with Russell & Erwin Mfg. Co. to carry a line of Cary's Patent Wardrobe Hooks and their Patent Towel Racks and Splasher Holders, who will be ready to supply the trade at bottom prices. This arrangement is made to meet the frequent complaint that there has been no central depot in New York City where these goods could be obtained for hasty orders. This objection will be entirely overcome by the new arrangement, and will be especially convenient for New York and near-by trade.

J. F. WOLLENSAK,

Chicago, Ill., has issued a new illustrated catalogue of Electric Bells, Enunciators, Electric Lighting Supplies, Speaking Tubes and Alarm Whistles for house and hotel service, which is exceptionally complete, and will be valued by the trade as representing a useful variety of these goods. Special attention is called to the Electric Bell Sets, which are packed complete in neat wood boxes and labeled with full directions, so that they are ready for use and shipment. These sets may be kept in stock the same as other Shelf Hardware, and the cuts in the catalogue and the directions given with the goods show the method of putting up and connecting the wires. It is claimed that these Bells require less skill for putting them up satisfactorily than the old style of mechanical gongs. Mr. Wollensak is giving special attention to handling this line of goods and to presenting them in such a way as to meet the wants and serve the convenience of the trade, and with the stock carried, the manner of packing and the details of the arrangement of the house, the establishment is especially well calculated for conducting a jobbing business in this line of goods. The following is the discount sheet referring to the catalogue, and, apart from the information it gives in regard to prices, will be of interest as showing the line of goods covered by the pamphlet:

	Dis. per cent.
Annunciators.....	20
Standard Electric Bells.....	20
Orient Electric Bells.....	20
Wood Box Electric Bells.....	20
Electric Bell Bells.....	20
Monitor Electric Bells.....	20
Iron Box Buzzers.....	20
Electric Bell Pushes.....	20
Electric Bell Pulls.....	20
Acorns, Reed Chain and Connectors.....	20
Foot and Tassel Pushes.....	20
Loose Cow, Tea, Sleigh and Russian Bells.....	10
Loose Wrought Gongs, Polished Brass.....	15
Loose Wrought Gongs, Nickel-Plated.....	10
Loose Cast Gongs.....	10
Electric Bell Sets.....	20
Electric Gas Burners.....	20
Electric Hand Gas Lighter.....	20
Spark Collars.....	20
Compound Push Buttons.....	20
Diague Batteries and Parts.....	20
Gondia Batteries and Parts.....	10
Sal ammoniac.....	20
Diamond Carbon Batteries and Parts.....	15
Gravity Batteries and Parts.....	10
Bell and Push Button Bases.....	20
Thermosets.....	20
Telegraph Instruments.....	20
Lighting Arresters.....	20
Portable Electric Bells.....	20
Acme Paper Clip.....	20
Telephone Watch Chains.....	20
Magneto Call Bells.....	10
Telephone Extension Bells.....	10
Insulated Wires.....	20
Bare Galvanized Iron Wire.....	40
In Half Mile Bundles.....	20
Less than Half Mile.....	20
Flexible Conducting Cord.....	20
Electricians' Tape.....	20
Electricians' Staples, single lots.....	20
Electricians' Staples, dozen lots.....	20
Electricians' Staples, case lots.....	50
Electricians' Staples, 10-pound boxes.....	50
Electricians' Staples, 10-pound boxes.....	50
Insulators and Cleats.....	20
Single lots.....	20
Dozen, 100 or 1000 lots.....	20
Watchman's Register.....	20
English Pattern Glimpses.....	20
German Pattern Bitts.....	20
J. F. W. Pattern Bitts.....	20
Long Cast Steel Auger Bitts.....	20
Regular Cast Steel Auger Bitts.....	20
Racer Glimpses.....	20
Excelsior Bit Handles.....	20
Bit Braces.....	20
Brick Drills.....	20
Chisels and Gouges.....	20
Hammers.....	20
Imhoff Side Cutting Pliers.....	20
Stubs' Side Cutting Pliers.....	20
Groovers and Sinkers.....	20
Champion Screw Drivers.....	20
Bellany Screw Drivers.....	20
J. F. W. Pattern Bitts.....	20
Porcelain Name Plates.....	20
Real Bronze Name Plates.....	20
Numbers and Letters.....	20

Mouth Piece Couplings.....	20
Alarm Whistles.....	20
Alarm Whistles and Mouth Pieces.....	20
Mouth Pieces.....	20
Rosettes.....	20
Flexible Speaking Tube.....	20
Tin Speaking Tube.....	20
Tin Speaking Tube Elbows.....	20
Tin Couplings and Tees.....	20
Staple Drivers.....	20
Coppered Wire Staples.....	20
Wrought Iron.....	20
Tinned Iron Straps.....	20

It will be borne in mind that in addition to the goods mentioned above the house manufactures and deals in Transom Lifters, Locks and Keys, Locksmiths' Supplies, Bell Hangers' Supplies, Theatrical Hardware, Refrigerator Hardware and Builders' Hardware Specialties.

WHAT THE TRADE SAYS.

A correspondent in Kansas sends us the following inquiry, with the request that we lay it before our readers:

I would like to inquire through our mutual friend, *The Iron Age*, how many retailers find difficulty in suiting customers with suitable sized Nails for shingling; 4's will reach through our thin lumber of the West and are too heavy; 3's are too short for soft wood and are too light. I am convinced that a 3 1/2 d. or 4 d. fine would be a popular Nail, and manufacturers, who must depend on the retailer to dispose of their product, would readily respond to any suggestion on the subject. Will some one give us the other side of the question?

The following letter indicates that the trade are not as familiar as they ought to be with the Standard Wire Nails, and proposes a method which might be adopted by the manufacturers:

In regard to Wire Nail trade will say my experience is that they are well liked wherever they have been used, and are giving universal satisfaction, but they are not generally known to all the retail trade. I should like to suggest why it would not be a good scheme for the manufacturer of the Wire Nail to advertise by issuing circulars and gummed labels to the general trade throughout the country, also to the general public, and stating the advantage in using the Wire Nail. This, I think, will let the public know what the Wire Nail is in a very short time, and, further, could they not be put up so that the number of Nails in a keg of Wire Nails and the number of Nails in a keg of Cut Nails would compare in price, thus:

Keq. 100 pounds, Cut Nails, cost.....	\$3.00
Keq. 80 pounds, Wire Nails, cost.....	3.00

and the number of Nails in the keg of either to be the same. Provided they cost the same to manufacturers, then Nails could be quoted at same price, regardless of kind. My opinion is that the competition will be between the Wire and the Steel Cut Nail manufacturers in the near future.

Of the condition of trade at Nashville, Tenn., we have the following report from Dudley Bros. & Lipscomb, of that city:

Trade is fully up to the average at this season. The abundant wheat harvest is now ready for the reaper, and some sales of the new crop have been made at 80 cents per bushel. This is about 10 cents more than the farmers expected to get, and consequently produces a good feeling in the country. As usual, the orders at this season are only of the sorting-up kind, but at the end of the month they aggregate well. We hope in a few weeks to report a genuine opening of trade all along the line, as July is the first month in our fiscal year, and trade always shows signs of a revival during that month. Prices on all goods except Nails remain unchanged. Nails have declined 5 cents per keg since our last report.

A correspondent in Indiana refers as follows to the condition of trade and the feeling which prevails:

Business continues quiet. There is a noticeable withholding of purchasers of Gasoline Stoves and Refrigerators. Freight train men report business quiet on the railroad, a small amount of freight passing over the road. They lay it to the strikes. It is very generally conceded that the country is not likely to have another such experience as we have passed through, as the workmen do not want the experience. The old adage is true: "Give the devil rope enough and he will hang himself." All crops except wheat show evidences of satisfactory returns. Lack of rain for two weeks is greatly felt by the farming vicinity.

The following suggestion with reference to the putting up of Copper Rivets comes to us from a Hardwareman in Michigan. It perhaps expresses the want of the trade in regard to the matter to which it relates, and will be of interest to Hardwaremen as well as manufacturers. If there is anything in the suggestion we shall be glad to hear from others in regard to it:

We wish to make a suggestion relative to Copper Rivets. There is a demand for, say, 1/2-pound packages containing an assortment of Rivets from 3/4 to 3/8 inch, No. 8 size, which we are confident every retailer would appreciate to sell the farming trade. They are buying Copper Rivets by the dozen for mending Harrows, &c., and seldom can you induce this class to purchase a 1-pound box of any particular size, while we could in the majority of instances sell the 1/2-pound box and assorted sizes, and save much delay in waiting on customers.

The members of the Smith, Lyon & Field Base Ball Club, who are referred to as having carried off the honors of the Hardware trade last year, under the style of the Smith, Cohu & Co. Club, have reorganized this year, and intimate that they are ready to accept challenges from any nine in the Hardware trade. Communications should be addressed to D. W. Clegg, captain.

THE CHICAGO SPRING BUTT CO.

have removed their office from 167 Clark street to their factory, 42 and 44 West Monroe street, Chicago, and are manufacturing three distinct Patent Spring Hinges, namely, the Chicago, Garden City and Keene Saloon Door Spring Hinges, together with a limited line of Builders' Hardware. These goods are all described in their new illustrated catalogue, in the preface of which, in order to save their customers the trouble of a comparison of prices, they state that the list prices are the same as in their small catalogue of 1885. They have discarded the Steeple Tip, and use a Ball Tip in its place, throughout their entire line of Spring Butts. The system of labels which they use to designate the material and finish of the goods, by means of the color of the label, is explained. The following are their discounts on the goods named:

Chicago Double-Acting Spring Butts, except Plated	Discount
Chicago Double-Acting Spring Butts, except Plated	30%
Chicago Single-Acting Spring Butts, except Plated	30%
Keene's Double-Acting Saloon Door Hinge, except Plated	30%
The above goods, Plated, discount 35%	
Garden City Double-Acting Spring Butts	30%
Garden City Double-Acting Spring Butts, except Plated	30%
Garden City Single-Acting Spring Butts, except Plated	30%
Push Plates, Genuine Bronze, Nos. 9, 10 and 11	30%
Nickel-Plated Door Numbers, Nos. 12 and 13	30%
Sliding Door Lock Cup, Nos. 15, 16, 17 and 18	30%
Plate Escutcheons, Nos. 19 and 20	30%
Surface Sash Lifts, Nos. 21 and 22	30%
Improved Screen Corners, Nos. 23 and 24	30%
Chicago Tilt Spring Chair Iron, No. 25	30%
Door Pull, No. 26	30%
Reliance Door Spring, No. 27	30%

Some of the customers of the company have suffered inconvenience on account of delay in the execution of their orders, which was caused by successive strikes in different departments of the factory, which has required the discharge of their former employees and the breaking in of an entire new set of men. The trouble is, however, regarded as over, and the company refer to the matter in a circular, in which they state:

Through the unsettled state of labor for the past month we have been seriously hindered in filling our orders. Goods could not be made for the prices sold, if the advances demanded by the workmen were acceded to. We are now running our works to their full capacity, and we hope to fill our orders in a few days. For reasons above stated, and the consequent employment of new help, our system has of late been somewhat disarranged. We trust that any errors and shortcomings will be kindly overlooked in view of the circumstances, and we assure our patrons that everything will be made satisfactory as far as lies in our power.

ARRANGEMENT OF HARDWARE STORES.

A Hardware house in the West advised us that they have built a Horse-Shoe Rack after the plan described some time ago, with bins on each side for the different sizes, and partitions through the center for handles, with shelf on top for stock of Horse Shoe Nails, and have added a shelf below for Harrow Teeth, and like it very much.

The issue of the London Ironmonger, May 29, contains the following editorial on the proper arrangement of shops and stores, which will be interesting to our readers not only for the glimpse it gives of the condition of English Hardware stores, but also as indicating that the question which has been for the past six months so extensively discussed in our columns is being taken up on the other side of the sea. We shall be gratified if the effort of our contemporary for the gathering of useful matter on this important subject is attended with as good success. The Ironmonger says:

The proper arrangement and display of the goods sold by ironmongers at home and storekeepers in the colonies is a subject which has never been discussed in a thorough and progressive spirit. Why so important a matter should have been neglected we cannot explain, but it is an undoubted fact that, in this age of attractive window dressing and general smartness, the arrangement of an ironmonger's stock and the best ways of setting out his show windows appear to have been very largely neglected. The shop of the average ironmonger is rarely ornamental—indeed, it is often a "lumbered-up," dark and uninviting place, into which a customer enters because he really must do so, and from which he emerges with as little delay as possible. There are many exceptions to this state of things, we are aware, but we are compelled to admit that the majority of ironmongery establishments are not by any means what they ought to be in respect of orderly and convenient arrangement, brightness and attractiveness. Now, there is really no good reason why ironmongery stores should be dismal and disorderly. Nowadays there are few classes of goods which are not to some extent ornamental, and it needs but a moderate amount of taste and trouble to present them so as to attract purchasers instead of repelling them. There is no art or skill either in piling a window full of Tools, Tinware, Grindery, Gas Fittings or tarnished Electroplated Goods. The eye of the passer-by is not caught by such a window, nor is a person tempted to buy from a shop the outward part of which bears no evidence of good taste and discrimination within. It is quite as easy for the window to be nicely fitted with ebonyized woodwork and shelves with colored cloth as it is to have it a neglected dusthole, and it is certainly much more likely to attract buyers if

its contents are brightly-polished goods, Clocks, Marble Mantels, Tiled Stoves and Hearths, Art Brasswork—all set out in the best manner and never overcrowded.

The interior of the shop is of even greater importance both to its proprietor and to those who enter it to inspect or purchase. If it be not well arranged in point of counters, shelving, drawers and stands, the business cannot be economically and expeditiously conducted, nor can the stock be properly kept. Where there is disorder in the stock there is often bad or unnecessary buying, and where that is the case many evils result. In some shops there is literally no "arrangement" at all in the proper sense of the word. The goods are put down anywhere, and there is no order whatever. Stoves and Lawn Mowers are mixed up together, Garden Rollers consort with Buckets and Coal Vases, Perambulators are alongside Hay Forks and Spades. Churns are jammed among Washing and Wringing Machines, and so on throughout. The ceiling is decorated in the most extraordinary manner, chiefly with chandeliers and hall lamps, but also bears many a burden which would be much better either on the floor or in proper cases. By reason of this higgledy-piggledy state of things cleaning and dusting are never properly done, and the goods are not suitably displayed, with the result that not only is the turnover lessened, but old stock accumulates at a rapid and often ruinous rate. As we have said already this ought not to be the case. No business can do itself justice unless it is properly organized and pervaded by order and method. An ironmonger's shop is a place where order is especially necessary. It should, if possible, be constructed for the business, and if that be impracticable it should at least be specially fitted and not be a mere makeshift. Holding that view as we do, we invite correspondence on the subject in the hope that something may be elicited which may be of service to the trade at large. We particularly invite details with or without neatly-drawn sketches of the arrangement of the counters, stands, shelving and other fittings, and shall be glad to accord as much space as may be demanded by the correspondence which may be elicited.

Woodcock & Baldwin, Corvallis, Ore., send us the following description of the Nail Counter, which is illustrated in its appearance and construction in Figs. 98, 99 and 100. In their communication describing it they say:

We have read with interest the different articles in *The Iron Age* on the arrangement of Hardware stores, and, as we have just completed a Nail Counter for our store

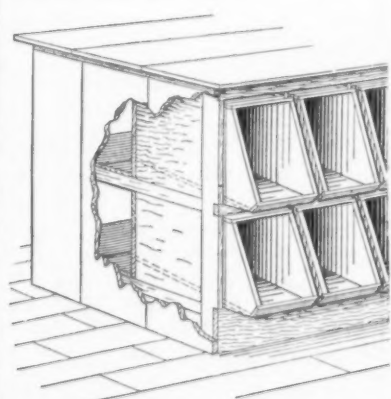


Fig. 98.—Nail Counter.

which we think the best in that line we have seen, we send you a sketch of it, which if you think worthy you can publish. The Counter is 12 feet 2 inches long, 3 feet high and 3 feet wide. Fig. 98 gives a general

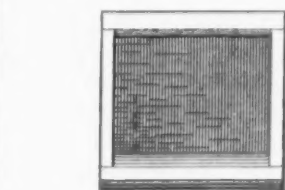


Fig. 99.—Front View of Nail Box.

view of the Counter. Fig. 99 represents the front of one of the Nail boxes, which are 14 inches outside measurement. Fig. 100 gives a side view of one of the boxes, having an entire length of about 2 feet 4 inches. The

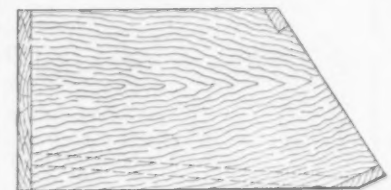


Fig. 100.—Side View of Nail Box.

boxes hold one keg of Nails, and are made to draw out like drawers for convenience in filling when empty. If found necessary trunk rollers can be placed on the bottom on each side to facilitate returning them to place when full. We have never seen a plan of Nail boxes, nor have we seen any in actual use before, which were not open to two great objections: 1. If made solid under a counter in any form the Nails could only be got into them by lifting the keg by main strength and throwing the Nails out of it into the boxes, a process involving hard work, and almost sure to leave bruised hands and skinned knuckles. 2. If made on the floor, and so arranged that the Nails are dumped in by raising the keg on the side, they are but little more convenient to get out than if left in the keg, and all the dirt and refuse gradually accumulates until it must be removed, and then there is no way but to rake it out with the hands, a slow

and dirty job, and besides one that will be sure to leave the hands filled with iron splinters. These boxes effectually do away with both of these objections. When the box is empty it is slid out of place, all the dirt and dust emptied out, and then, with the box on the floor, the Nails may be easily dumped in and the box placed back. In the rear of the boxes we have shelves and bins for Carriage and Machine Bolts, Lag Screws, Strap Hinges, and the top is used as an ordinary counter.

PACKAGE AND CARTAGE.

In reply to the communication from Chicago, which appeared in our issue of May 20, we have the following from "Pennsylvania," in which the discussion of the question in regard to the propriety of charges for packing and cartage is further continued:

I notice "Chicago's" reply to my letter on the box and cartage question, and will answer same with pleasure. As remarked by the Editor, this is a "knotty question," and covers a broad field, and can best be settled by an understanding between buyer and seller. Being a retailer, I am working for the retailers' interest, and just why the jobber should be protected in his expenses any more than the retailer I fail to see. Custom does not make a thing right, no matter how old it is, and as the country advances trade channels are changed, and with it the old business methods. Years ago, when merchants had about one fourth of the competition they have now, and large profits, items of expense were not looked into so closely as at present. The trouble is it is a dead loss to the retailer; he has no chance to get it back. He would soon lose his retail trade if he attempted to add any such charges to his bills; but if the jobber had to pay the manufacturer for cases he has a chance to get even and keep himself whole by adding it to our bills, and I cannot see why he should not pay his own expenses as well as we have to. If his sale-man comes into my store and sells me \$100 worth of goods he does not expect me to come after them, and how does he expect me to get them unless he packs and delivers them to the railroad company? He should not ask me to pay for packing his own goods, and they are his until delivered to the railroad company. But I must return to "Chicago's" questions or he may think I want to evade them.

1. Every business, large or small, has its proportional expense, and I do not think there is a business man but will agree with me that a large business can be done on a smaller percentage of expense than a small one. I am a small retailer, employ but five men and two horses, and, to go a little into question third, have my proportion of expense and could do \$10,000 a year more with a very slight increase. Like many more retailers, if I could get the trade, would only be glad to add more men and horses, and would not ask my customers, like "Chicago," does, to pay their expense. Question 2.—Yes, put it in the price of your goods, along with your bookkeeper's and salesmen's salaries. With the many opportunities we have of keeping posted in prices, and the close competition on the road, I think the retailers will join me in taking our chances of excess charges to make this item up. Question 4.—The grounds I have for supposing the profits of Hardware jobbers are as good as those of the Tinware and House-furnishing houses, Bird Cage and Brush manufacturers are that they are subject to the same competition and sell just as close as the Hardware jobbers, and if they can deliver their large new cases free, what claim can Hardwaremen make that they should have the preference?

In the fourth query we had reference to our competition with city supply houses or retailers, as they are where our jobbers would take all our profits in their box and cartage charges. Supply houses deliver f.o.b. to our customers, and glad to do it. The reason "Chicago" does not believe that merchants feel imposed on in having to pay these charges is because he is a jobber. For us to pay charges in proportion to the one I mentioned on all our goods would cost us \$1000 a year more than I care to spend that way.

To sum up, I would say to "Chicago" or any other jobber that quantity regulates the price, and I or any other dealers have no trouble, where we can handle the quantity, of buying from many manufacturers not only free of box and cartage, but freight paid to our depots, and if jobbers want to hold their trade they must make it an inducement for their customers to buy of them.

PENNSYLVANIA.

WIRE NAILS.

We give below extracts from other letters which have been received in regard to Wire Nails. It will be seen that, while some of the writers refer briefly to the results of their observation and experience, others, with more or less fullness, give information in regard to the special kinds of work for which the Nails are used, with reference to the alleged advantages and disadvantages, and an occasional allusion to the qualities of competing Nails.

Richmond, Ind.—I have been handling Wire Nails in 1 to 5 pound packages for the past three years and find the sales more than double every year. When ordering first my orders were for 25 to 50 pounds, and the orders were not very numerous; the second year my orders were for 300 to 500 pounds, and the orders were more numerous, say four or five times during the year. This season I have ordered for the third time, first order for 1000 pounds, second order for 2000 pounds, and the present order with the American Screw Co. for 1000 pounds, and will not have enough for the spring trade. Contractors and mechanics here speak very good of the Wire Nails. I have never handled the Standard Nail, but have ordered an assortment from 2d. to 20d. and expect them in this week. I think they will take, as I have had a number of contractors speaking about them. You will see that the increase in Wire Nails in this neck of the woods is healthy, and parties are using them more freely in place of the Cut Nails.

Bradford, Vt.—I note your remarks in your issue of May 20 in relation to Wire Nails. I find a steadily increasing demand for Wire Nails and Brads, not especially rapid, but seemingly rather slow. It is very sure and healthy, and of such a nature that leaves no chance for an unfavorable reaction. Nails and Brads 1 inch and shorter very largely take the place of Finishing and Clout Nails of corresponding lengths; 1½-inch Wire Nails are taking the place of 3d. and 4d. Finishing, and 4d. fine for shingling; 1½ inch are being used for laying clapboards in place of 4d. box, 5d. box and 5d. com.; 1½, 2, 2½ and 3 inch are quite freely taken for general use in place of corresponding lengths of Cut Nails; 2, 2½ and 3 inch Brads are taken freely for inside and outside finish and the laying of floors, taking the place of 6d. ff., 8d. ff., 10d. ff., 8d. f. and 10d. f. There is an inclination gaining as the years go on to use shorter Nails. A single illustration: Ten years ago nearly all floors were nailed with 12d. and 20d. Today 8d. and 10d. or corresponding lengths take their places. A special large Flat Head Wire Nail is being used in place of cleats by some box-makers, taking the place of a Clinch Nail, and the results are very satisfactory. Wire Nails longer than 3 inches I am not prepared to talk about. While I have them in stock up to 6 inches, and have had them for several months, the sales are nominal, and doubtless will be for some time to come. Practical mechanics express almost universal satisfaction.

Manchester, N. H.—Our sales of Wire Nails have steadily increased since we first bought, perhaps, 200 pounds to offer to those who used the paped Finishing Nails and Brads. We now sell them for finishing, clapping, box and crate nailing, flooring and clinching, for which they are far superior to common Clinch Nails. They have come to stay, and must be given a place in every Hardware stock of any extent.

Indianapolis, Ind.—In my experience the greatest success of Wire Nails has been principally in Wire Molding Brads. I find that they have almost displaced the entire trade I formerly had in Finishing Nails. In regular Flat Head Nails the best selling sizes appear to be from 1½ to 2½ inches. While I know of many cases where the Wire Nails did not answer the purposes for which they were tried, it is my opinion that in the future Wire Nails will show largely increased sales.

Erie, Pa.—We notice in last week's *Iron Age* an inquiry as to the progress and use of Wire Steel Nails. Our opinion is that they will far supersede the use of Cut Nails. We are selling them largely for the following uses: All small sizes in place of Brads and Finishing Nails, 6d., 8d. and 10d.; for making boxes, 8d. and 10d.; for making board fences, 20d., 30d. and 40d.; for laying plank sidewalks and barn floors, and, in fact, any place where a Cut Nail is to be used permanently, we find they are growing rapidly in favor.

Baltimore, Md.—Our experience in Wire Nails has been as follows: About February, 1885, we bought a few pounds of Wire Finishing Nails as an experiment, and because they were something new. We introduced them to our customers, asking them to try the samples which we gave them, and let us know how they liked them, and how they would compare with the Iron Nails. Nearly all our trade decided they were superior for the following reasons: 1. Cheaper, as there are more to the pound. 2. They would not split the wood, no matter how near the edge they were driven, nor how cross-grained the material. 3. Stronger, as they would not break like the Iron. Now we do not buy the Cut Finishing Nails at all, but buy the Wire Finishing Nails by the 1000 pounds. From what we can learn our experience is only the experience of the trade at large. We use from ½ inch up to 3 inches. The Wire Nails to supersede the Cut Nail we have not handled as yet. The price of \$4 base makes them so much higher than the Cut Nails, we have not had a chance to use them. We have no hesitancy in predicting their use to the exclusion of the Cut Nails in some branches, such as slating, box-making, lathing, casing and, in fact, wherever the Nails will not be used temporarily, as they are hard to draw and difficult to break.

East Saginaw, Mich.—As regards the Wire Nail question we would say that our mills who are making boxes are taking hold of the Nails very freely and buying them at prices that have aggregated over 50 per cent above the price of Cut Nails, and their opinion has been that they are cheap at this price. They say they do not get any waste Nails, and the Nails drive very readily and hold the wood well. We have no doubt but that the business in this line will increase steadily, as we have sold more of these Nails this spring at a time when we could have got a full supply of Cut Nails, and wherever they have been used parties have given us second and third orders for them, and they now say they would not go back to the common Cut Nails. We think one of the reasons why they have come into more general use is that the difficulty during the last of the year in obtaining Cut Nails as fast as wanted has driven manufacturers who are users of Nails into the use of Wire Nails, while perhaps from prejudice it would have been hard work to have got them to take hold of these, owing to the difference in price over the price of Cut Nails.

Kansas.—The best brands of Steel Nails seem to give entire satisfaction, and for general purposes, I think, are superior to the Wire Nails. While the Wire Nails have the advantage of doing better work where the grain of the wood crosses, the holding power (endwise) is one-half less and the cost is more. I think the preference shown for them by some mechanics is because they drive nicer and you can finish up work smoother. It is argued that they weigh less than Cut Nails, but it requires more of them to make work as strong. I experimented to-day with a Bellaire Steel rod, and a No. 10 Wire rod, and found the Cut Nail pulled out 100 per cent. harder than the Wire Nail. I do not think they will come into general use as they are now made.

Amsterdam, N. Y.—In regard to Wire Nails we have to say that we believe there

is a growing demand for them, which will be brought out more prominently as the people become acquainted with the uses to which they are specially adapted. For small boxes, honey boxes, &c., they have superseded other small Nails. We have had a demand from builders for 2-inch No. 14 Molding Nails and a few sizes smaller. Have sold some penny Nails to packing-case makers, and our report from them is not favorable. Broom manufacturers are using certain sizes quite freely with excellent results.

Hamilton, Mo.—As to my experience in trade of the Wire Nails I have to say I have been handling the keg Wire Nails six months, making no special effort to push them. My sales are increasing, and each customer after trying them calls for more. They are taking the place of Clinch Cut Nails, as they pass through the wood without tearing out a portion of the wood. I sell sizes corresponding to Cut Nails in about the same proportion—more 10d. and 8d. than others.

Denver, Col.—We commenced handling Wire Nails as soon as they were put on the market, from 3 inches down, as we felt sure they would supplant similar sizes in Finishing and Clout Nails. All we had to do was to tell carpenters to try them, and to return them if they did not suit. We never took any back. They are used where formerly only Screws would do. They can be driven without splitting to the head in hardwood. In our judgment the Wire Nail put the Central Mfg. Co. in its coffin, or at least had much to do with its fatal illness. The sale of them in Colorado in place of the common Cut Nail is as yet limited, but we have the utmost faith in them. It is certainly a very economical invention.

South Bend, Ind.—We have had only a small demand so far for Standard Wire Nails. Have just begun keeping them in stock. In the smaller sizes they are fast superseding Finishing Nails and Patent Brads.

Reading, Mich.—They are not selling here in competition with Cut Nails to any extent. Have sold some Wire Brads, mostly to manufacturers of furniture, who speak highly of them and seem to think they will supersede the Cut Brads for their use, as they claim they are not so apt to split thin stuff, and hold better in timber.

Evansville, Ind.—Large increase in Molding Nails, ¾ to 2 inch. Used for molding. Of late a demand for Flat Heads, but only to small extent. Our experience is that Wire Nails have taken the place of Finishing and Casing Nails only, and 3d. and 4d. Cut Nails, and then only to small extent for boxing. Have heard but little from practical mechanics, though mostly in favor of Wire Nails.

Wyoming, Ill.—In regard to Wire Nails we have had no experience, as we have never bought any, but believe them to be a good thing. They are reported to be coming into use very fast (that is, by the wholesale trade). We have never met a retailer who has used them. We shall not attempt to carry them until our trade demand them, and we have had no inquiry except by carpenters, which shows that our near competitors are not trying them. We have large sales of Steel Cut Nails from farmers, who use them in place of Clinch Nails for rough work.

Princeton, Mo.—We keep a full line of Wire Nails in stock, but have not given them any special place or pushed them. We think they will come to the front and be a leading Nail, as the holding qualities are greatly superior to a Cut Nail, and as this is understood it will bring them to the front.

Urbana, Ill.—The demand for Wire Nails with us is not large. So far they have been used mostly in making boxes, for which purpose they seem to be very desirable. They hold much better than a Cut Nail, and the advantage of the Wire over the Cut Nail is especially plain when driven into the end of a board or in a line with the grain.

GERMAN COMPETITION WITH ENGLISH MANUFACTURERS.

The following remarks are made in regard to German competition in Locks by the Wolverhampton correspondent of the *Ironmonger*. The facts referred to are a few indications among many of the growing seriousness to the English manufacturers of the competition that is in many lines coming from Germany. After referring to the prevailing dullness in the making of Locks, the following facts are given:

The necessity of producing at a low price is pressing itself upon manufacturers' attention with increased persistency. Journeys of principals and travelers to London buyers afford ever-increasing evidence of German competition. The Germans will have the orders at almost any price if the goods are required in large lines. London customers assure local makers that German salesmen will come into a shop, and picking up a sample Lock that may be lying about, offer to take almost any price that the buyer may name if only he will place a contract for a quantity. As I have before pointed out, the goods are beautifully finished by the machinery which the Germans employ, and retail buyers on this account largely prefer these to the native article. The Germans are likewise taking increasing orders on colonial account. Australian buyers well known to local manufacturers state that, whereas years ago nothing but English Hardware was known in the colonies, now German and French and American Locks are selling with ever-increasing freedom. The Australian buyers make these statements in explanation of the fewness of the orders which they are now sending to Wolverhampton makers. The Germans, they state, study the exact wants of the market through their representatives on the spot, and the finish and appearance of their goods are such as to at once commend them to favor. English operatives are only just waking up to the seriousness of this foreign competition, and they will have to show additional disposition to meet their employers in the matter of wages and hours if the markets are to be retained.

NEW PUBLICATIONS.

REPORT OF THE NAVAL ADVISORY BOARD ON THE MILD STEEL USED IN THE CONSTRUCTION OF THE HULL, BOILERS AND MACHINERY OF THE DELPHIN, ATLANTA, BOSTON AND CHICAGO. Prepared by Assistant Naval Constructor R. Gatewood, U. S. N. Washington, Government Printing Office, 1886.

To the iron and steel trades one of the most valuable publications recently issued by the Government is that on the mild steel used for the new cruisers. Its existence is unfortunately known to but few, and in calling attention to it we may be allowed to summarize its contents at greater length than is usually accorded to similar publications. Assistant Naval Constructor R. Gatewood, to whom was assigned the duty of preparing the report before us from the records of the Naval Advisory Board, has accomplished it so well that the mass of material at his disposal acquires new significance. Mr. Gatewood gives an historical sketch of the considerations which led to the decision to use mild steel as the material in the construction of the new cruisers. Toward the close of April, 1883, the Naval Advisory Board sent out its specifications concerning them. The steel manufacturers showed willingness to supply the material, but the shipbuilders expressed strong doubts as to the necessary certainty of manufacture and fears of excessive cost. This led to an investigation and to a careful study of the requirements for material in foreign countries. Revised specifications were drawn up and issued to the inspectors on the 18th of June, 1883, contracts being made shortly afterward with Roach for the building of the four cruisers. These were followed on September 13th, 1883, by detailed instructions to inspectors. The Chester Rolling Mills, the Norway Iron and Steel Co., of South Boston, and Park Bros. & Co., of Pittsburgh, took the sub-contracts for furnishing the ship and boiler plate, and the Phoenix Iron Co. that for the shapes. All of them proceeded cautiously in their endeavors to produce a material capable of meeting the severe tests, and some of the difficulties and hardships growing out of the latter were subsequently removed through amendments of the specifications.

After this general introduction follow the reports of the different inspectors who examined the steel produced at the different works. The record of the Chester Rolling Mill has been published in the form of a paper by Mr. F. G. Salom, at that time superintendent of the steel department of the works. Lieuts. F. P. Gilmore and G. A. Bicknell, U. S. N., express the opinion that the 13 reductions from a 10-inch ingot to the 3/4-inch plates of the Dolphin's boiler shells and the protective deck of the Atlanta and Boston, or the 10 reductions to the 1-inch protective deck plates of the Chicago, "are less than is generally considered necessary in such cases in Europe, and the attention of the manufacturers may have to be called to the desirability of using thicker ingots, unless some method can be devised for obtaining similar ingots without carrying too high silicon. The defects of a plate which has received too little work may not in general be detected by a few tests, and are undoubtedly rendered more apparent in flanging and working." From Lieut. F. J. Drake's report it appears that at the Bay State Mills the reduction was 25 per cent. greater, which he considers better practice, qualifying it, however, with the statement that "much depends on the conditions of casting." The tests of the Norway steel, like that of the others, show clearly how practice rapidly improved. The rejections are frequent among the early heats, but become less and less frequent. Some interesting special tests made may be referred to later. The quantity of steel furnished by the Black Diamond Works, in Pittsburgh, was comparatively small. In their report the inspectors allude to the use of natural gas in the open-hearth furnace, stating what we believe is the general experience—that it cannot be preheated because the carbon thrown down from the marsh gas in it deposits itself in a hard layer on the checker-work, gradually clogging it. The average weight of 17 heats of metal made under the contract was 27,546 pounds, the average time from charging cold materials to tapping being seven hours, which gives about 15 heats per week. The Cambria Iron Co. made a large quantity of steel for the angles, bars and deck beams which were ordered by the Phoenix Iron Co. The inspectors give some details as to plant, &c. We may quote the following table showing the sizes to which the blooms were rolled for the different shapes.

Finished shape.	Size of bloom.
2 x 3 inch angles and under.	3 x 3 inches.
2 1/2 x 3 1/2.	3 x 3 and 3 1/2 x 5 inches.
2 1/2 x 3 1/2 to 5 x 4 inches.	3 1/2 x 5 inches.
5 x 4 and 6 x 3 1/2 inches.	5 x 4 inch (hammer'd).
6-inch deck beams.	6 1/2 x 5 inches.
7, 8 and 9 inch deck beams.	7 1/2 x 7 inches.

In referring to the work at the Phoenix Iron Co., the inspectors say: "When it is considered that a 23 inch mill is considered necessary to roll a T-rail 4 1/2 inches high, with a 4-inch flange, it appears quite a feat in the art of rolling to have made 9-inch deck beams over 50 feet long at one heat on a 20-inch mill." The report gives the tests of every individual heat, chemical analysis being added in most cases. Another table affords a comparison of the tests of 2 1/2 x 3 1/2 inch flats at Johnstown, with tests of the same heats as finished material at Phoenixville. Though somewhat vitiated by the fact that the tests were made on different machines, the records show that with about 60 per cent. of the thickness and sectional area of the test pieces taken from the flats, about 70 per cent. of the reduction of area in the rolls from the ingot, and 63 per cent. greater reduction of thickness from the ingot, the finished material showed a gain of 2350 pounds, or 3.85 per cent., in tensile strength, while the ductility remained unchanged.

The following general summary gives the principal particulars of tests and inspection in the aggregate. In regard to it the report says: "It is seen that out of 880 heats tested up to the first of September, 1884, only 146, or 16.6 per cent., were rejected, and this amount would have been further diminished if the orders for boiler steel could have been

issued sooner, notably in the case of the Norway steel, many heats of which, too soft for ship metal, passed satisfactory tests for boiler metal, but were rejected for lack of orders. The very small amount of material rejected on the quenching test, after being accepted by heat tests, is still sufficient to call attention to the efficiency of this test; increasing familiarity of manufacturers with the requirements and methods of tests would still further diminish the amount so rejected. The necessity for this test, nevertheless, exists in that it is applied to each piece and prevents all possibility of serious defect arising from treatment subsequent to casting or of mistakes at works producing many grades of steel."

GENERAL SUMMARY OF RESULTS.

Manufacturers.	Weight in tons delivered.	Average tensile strength.	Average final elongation.	Tons rejected on quenching test.	Number of heats accepted.	Number of heats rejected on tensile test.	Percentage rejected of total number.	Percentage rejected on quenching test.
Chester Rolling Mills.	1,616.07	61,987	26.09	14.73	237	60	20.20	0.91
Park Bros. & Co.	287.40	63,125	25.83	23.93	56	9	13.84	8.33
Norway Iron and Steel Co.	1,616.22	62,472	25.56	13.75	308	61	16.53	0.85
Cambria Iron Co.	1,053.00	64,020	25.52	3.41	133	16	10.74	0.32
Totals.	4,572.79			55.82	734	146		
Averages.		62,698	25.755				16.59	1.22

Then follows a short record of the failures in the shipyard and boiler shop. In the former the workmen had little or no experience with the material, and yet the results were "particularly good."

The record of the tests with the rivet steel was presented in full in a recent issue. A brief account is given also of the relative quality of steel forgings made from scrap and from a number of billets or blooms of convenient size. The average of the scrap forgings shows a tensile strength of 60,768 pounds and an elongation of 10.75 per cent., while the figures for "bloom" forgings are 63,037 pounds and 22.12 per cent.

The Naval Advisory Board called for opinions by the different inspectors as to desirable changes in the requirements and tests, in view of the possible action of Congress as to further steel construction for the navy. The replies received, which are printed in full, and are interesting, were in some cases considered in drawing up the proposed new circular of tests. This is also submitted, together with the proposed detailed instructions to inspectors. This closes the second part, which is followed by what may be considered a general review of the subject of testing and of the physical properties of material, with special reference to the experience obtained with the steel for the cruisers. We will confine ourselves to pointing out the latter. In order to get at the effect of the form of the material tested a series was made to compare a number of tests of Cambria steel as flats and as rounds. The average of eight heats showed that 6 x 1/4 flats had an elastic limit of 41,880 pounds, against 41,387 pounds for 3/4-inch rounds, a tensile strength respectively of 65,026 and 64,224, and an elongation of 25.75 and 24.93 per cent. respectively. A second very interesting series of tests were those made to determine the nature of the effect of changes in length of test pieces, the results of which were:

Original length between marks.	Tensile strength.	Elongation.
	Lbs. per sq. in.	Per cent.
Groove.	63,065	40.5
1 1/4 inches.	56,680	40.0
2 "	56,600	44.0
3 "	56,300	40.0
4 "	56,400	38.0
5 "	56,300	34.5
6 "	56,445	33.0
7 "	55,700	29.5
8 "	56,250	28.5
9 "	55,300	27.9
10 "	55,955	26.6
11 "	54,750	27.4

Such a boiler-plate tested by the United States supervising inspector would give about 63,000 pounds tensile strength and 50 per cent. reduction; tested for the Pennsylvania Railroad it would show about 56,500 pounds, with 36 per cent. elongation, while as tested under the rules of the Naval Advisory Board the result would be 53,700 pounds, with 27.9 per cent. elongation. "The difficulty of the steel manufacturer in working to such discrepant specifications is evident." On the question of extension under stress some very interesting diagrams are given, showing the disposition of the extension along the length of specimens of Cambria steel selected at random. Then follows a valuable chapter on shearing strains, and another on strain diagrams. With annealing steel plates the experience of the board has been of a contradictory nature. The average effect on Chester steel was a reduction of about 5 and 19 per cent. respectively in the original values for tensile strength and final area, and an increase of 12.5 per cent. in the original value for ductility in 8 inches. Thus there was a considerable diminution of tensile strength and increase of capacity for local distortion. On the other hand, a number of sheets for the externally-fired boilers of the Chicago were carefully annealed, and while the original material was excellent, averaging 60,588 pounds tensile strength and 29.54 per cent. elongation, the annealing reduced the tensile strength so much, 6680 pounds, that the plates could not be used. At the Norway Steel and Iron Works a special investigation showed contradictory results. The report summarizes the question as follows: "The conclusion arrived at from a consideration of the results of annealing plates which have not been finished or otherwise worked, so as to necessitate the removal of purely local strains, is that the effect is as apt to be deleterious as beneficial as the process is ordinarily carried out. Good metal shows little improvement in any case, and, while inferior metal may be doctored up to show somewhat better test, the improvement in intrinsic quality is uncertain, but the fact that as commonly done annealing may continually and with reasonable certainty lower the working quality, and sometimes excessively so, should prevent any general resort to the practice for boiler or other plate at the

mills. It should also be remembered that each time a plate is heated and cooled without work upon it it becomes more liable to damage from the next heat. Thus parts of flanged boiler-plates may have been four times so treated before being worked in if the plate was annealed before delivery."

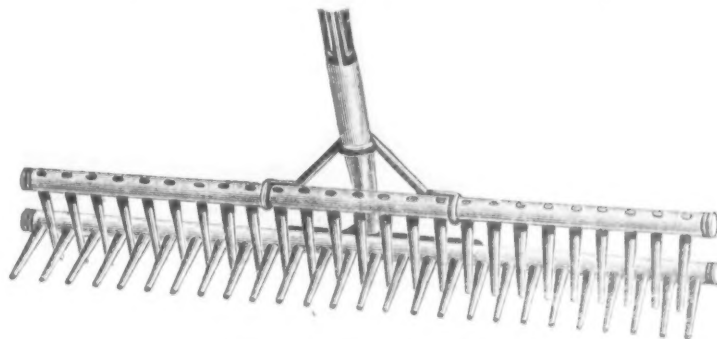
The following view is expressed concerning the methods to be followed in annealing: "Upon examining the different causes of the effects observed at the Norway and Chester works, the necessity of certain precautions will appear. In the first place, the fuel should be comparatively free from ordinary impurities, and the flame should be kept neutral. The results will undoubtedly always be better if the furnace is so de-

Hardware Novelties.

The Automatic Lawn Rake.

The Ney Mfg. Co., Canton, Ohio, are making the lawn rake named above and illustrated in the accompanying cut. It has 26 wooden raking teeth made of hickory, that are referred to as not liable to tear up the sod, as most lawn rakes do; but the feature to which special attention is directed

similar notches closer together. When an upper and a lower notch come together a perfectly round hole is made in which a pin is inserted, so that when the ball is screwed down by means of the screw under the bench it is firmly held in the desired position. It will be seen that having the notches in the plate close together a fine adjustment of the position of the ball is permitted, so that with the variety of positions permitted by the construction explained above the



The Automatic Lawn Rake.

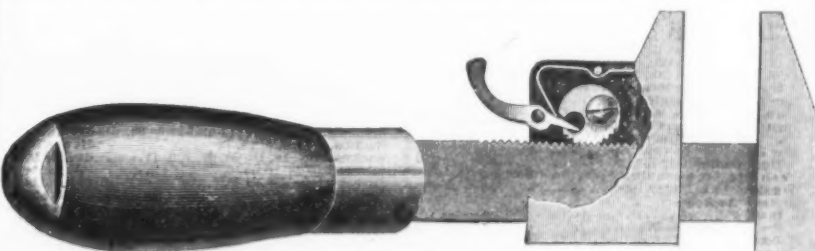
is the fact that the rake is automatic, clearing itself from grass without any annoyance to the operator. A backward motion of the rake from the operator is described as cleaning all the teeth at once, thus avoiding the disagreeable task of cleaning the teeth with the fingers, as in the case of other rakes.

The Utility Wrench.

The Utility Wrench Co., No. 231 East Ninth street, New York, are just introducing a new wrench which has many interesting and novel features of utility and convenience. It is described as combining with great strength and durability an exceptional rapidity of adjustment and convenience in getting at the heads of nuts and bolts, couplings and set-screws in inaccessible places and where the mechanic can only use one hand. The mechanical principle involved in its construction is very clearly shown in the cut. The locking is effected by an eccentric cam, held in place or released by a latch controlled by the thumb. When it is placed loosely over the nut the jaws are

Neptune Flexible Nozzle.

The Hartford Rubber Works, John W. Gray & Co., proprietors, Hartford, Conn., are putting on the market this season the Neptune Flexible Spray Hose Nozzle, which is made entirely of rubber, and is represented, in its appearance and use, in the accompanying illustrations, Figs. 1 and 2. The body of the nozzle is made of solid and

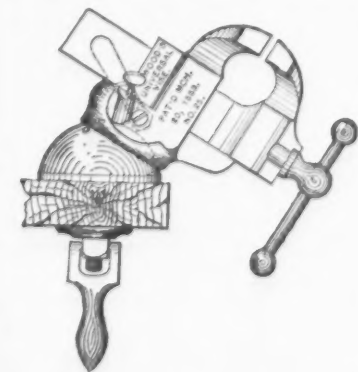


The Utility Wrench.

closed by pushing up the sliding jaw with the thumb. In this position it is securely locked; but, under any strain or pressure, the cam is easily disengaged by depressing the latch. This permits of instantaneous and accurate adjustment under any circumstances. This tool is described as well made in all its parts, the materials used being tool steel and Norway iron. The sliding jaw is forged solid and machined up to fit the bar, thus avoiding any concealed flaws or other causes of weakness. It is stated to have been subjected to the severest tests for strength, and is highly commended by practical mechanics. The tool will be made in the usual variety of sizes, and all parts are interchangeable. The jaws are closed by a pressure of the thumb and released by depressing the latch; and a loose, snug or tight fit may be secured at the pleasure of the operator.

Wood's Patent Universal Vise.

The accompanying illustration represents a vise which is being made by the Hinsdale Machine and Tool Co., Hinsdale, N. H., the special feature of which is the manner in which it is constructed, so as to permit of its being placed in a great variety of different positions, according to the requirements of the work. This device consists in having a ball, or strictly a hemisphere, with a rabbeted groove passing through it, into which the lower portion of a link connected with the vise fits, the groove being enlarged in the two ends, so as to receive the rabbeted portion of the link. The upper part of the link is bored and enters the base of the vise, which is turned so as to fit the ball on which it rests, and a bolt passes through both the base of the vise and the link, one portion of



Wood's Patent Universal Vise.

The lumbermen of Michigan are much exercised over the news that the Canadian Government has advanced the export duty on pine saw logs from \$1 to \$2 per 1000 feet. The effect of this advance in the export duty will be to materially injure the sawmill industry of Eastern Michigan. Parties in that State own about 1,700,000,000 feet of pine timber in the Georgian Bay district, the great bulk of which was purchased in the expectation of cutting the logs and shipping them to Alpena, the Saginaw River and other points for manufacture. The object of this movement is to compel Americans who have purchased timber limits in Canada to erect mills in Canada,

hard rubber, giving it all requisite rigidity and strength, while the end of it through which the water escapes is soft and flexible, so as under the pressure of the fingers to enable the operator to regulate the character of the stream. When no pressure is applied, as in Fig. 1, a plain stream of the full capacity of the nozzle is thrown, but according to the pressure applied, as in Fig. 2, a spray more or less delicate can be produced. The nozzle is threaded in the usual manner, so as to screw on to the



Fig. 1.—Neptune Nozzle, Throwing Solid Stream.

hose couplings. The enlarged cup-shape opening at the end of the nozzle, as indicated in Fig. 1, is referred to as giving the wide range of stream secured by this device. In addition to the inexpensiveness of this nozzle, and its practical indestructibility, its range from the coarsest stream to one ex-



Fig. 2.—Neptune Nozzle, Throwing a Spray.

ceedingly fine is especially referred to. Of this nozzle the following sizes are made: 1/2 and 3/4 inch, 3 1/2 inches long; 1 inch, 4 1/2 inches long; 1 1/4, 5 1/2 inches long; 1 1/2, 6 1/2 inches long. The sizes 1 1/4 and 1 1/2 inches are designed for use in factories for fire purposes, and the company expect to make also a 2-inch. It is probable that the larger sizes will require metal bushings in the threaded screw to prevent the blowing off from the hose, and the bushings are being prepared for this purpose. Smaller sizes are referred to as not requiring them. The utility of these nozzles for garden purposes, and for washing carriages, windows, cars, &c., is obvious.

It is estimated that the change of gauge on the 14,000 miles of Southern roads to the standard of 4 feet 9 inches, which has just been made, has involved an outlay of about \$2,100,000.

June 1st 4432 immigrants arrived at Castle Garden, the largest number on any single day this year.

<p>Lanterns. Tubular, Standard No. 0, 7 doz. \$6.75 @ \$7.00 Tubular, Standard No. 1, 7 doz. 8.25 @ 8.50 Tubular, Lift Wire, No. 0, 7 doz. 8.50 Tubular, Lift Wire, No. 1, 7 doz. 10.00 Guards for Tubulars, ad 7 doz. 25 Police, Small, 8 doz. \$7.25; Large, 8 doz. \$10.25 Porter's Tin R. H. 7 doz. \$10.25 @ \$10.50 Owl 7 doz. \$10.25 @ \$10.50</p> <p>Lawn Mowers. Standard Machines..... \$10.25 @ \$10.50 Cheaper Machines..... \$10.25 @ \$10.50</p> <p>Lemon Squeezers. Porcelain Lined, No. 1..... 7 doz. \$6.00, \$10.25 @ \$10.50 Wood, No. 2..... 7 doz. \$3.00, \$10.25 @ \$10.50 Wood, Common..... 7 doz. \$3.00, \$10.25 @ \$10.50 Dunlap's Improved..... 7 doz. \$3.75, \$10.25 @ \$10.50 Sammy's..... No. 1, 7 doz. \$10.25 @ \$10.50 Jennings' Star..... 7 doz. \$2.50 The "Horse"..... Nos. 1, 7 doz. \$10.25 @ \$10.50 Little Giant..... 7 doz. \$10.25 @ \$10.50 King..... 7 doz. \$10.25 @ \$10.50</p> <p>Lines. Cotton and Linen Fish, Draper's..... \$10.25 @ \$10.50 Draper's Chalmers..... \$10.25 @ \$10.50 Draper's Mason's Linen, 84 ft. No. 1, \$1.25; No. 2, \$1.75; No. 3, \$2.25; No. 4, \$2.75; No. 5, \$3.25; No. 6, \$3.75; No. 7, \$4.25; No. 8, \$4.75; No. 9, \$5.25; No. 10, \$5.75; No. 11, \$6.25; No. 12, \$6.75; No. 13, \$7.25; No. 14, \$7.75; No. 15, \$8.25; No. 16, \$8.75; No. 17, \$9.25; No. 18, \$9.75; No. 19, \$10.25; No. 20, \$10.75; No. 21, \$11.25; No. 22, \$11.75; No. 23, \$12.25; No. 24, \$12.75; No. 25, \$13.25; No. 26, \$13.75; No. 27, \$14.25; No. 28, \$14.75; No. 29, \$15.25; No. 30, \$15.75; No. 31, \$16.25; No. 32, \$16.75; No. 33, \$17.25; No. 34, \$17.75; No. 35, \$18.25; No. 36, \$18.75; No. 37, \$19.25; No. 38, \$19.75; No. 39, \$20.25; No. 40, \$20.75; No. 41, \$21.25; No. 42, \$21.75; No. 43, \$22.25; No. 44, \$22.75; No. 45, \$23.25; No. 46, \$23.75; No. 47, \$24.25; No. 48, \$24.75; No. 49, \$25.25; No. 50, \$25.75; No. 51, \$26.25; No. 52, \$26.75; No. 53, \$27.25; No. 54, \$27.75; No. 55, \$28.25; No. 56, \$28.75; No. 57, \$29.25; No. 58, \$29.75; No. 59, \$30.25; No. 60, \$30.75; No. 61, \$31.25; 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WHOLESALE METAL PRICES, June 9, 1886.

ESTABLISHED 1853.

METALS.

IRON.—Duty: Bars, 8-10¢ to 11-10¢; provided that no bar shall pay a less rate of duty than 35¢. Sheet, 1-10¢ to 1-10¢. Hand, Hoop and Scrolled, 1-10¢ to 1-10¢. Railroad Bars weighing more than 25 lb per yard, 7-10¢ to 1-10¢.

Standard American Pig Iron.

Foundry No. 1 X..... 18.50
Foundry No. 2 X..... 17.00
Gray Forge..... 16.50

No. 1 Scotch Pig Iron.

Carnegie..... 20.25
Cottrell..... 20.25
Glenbrook..... 19.25
Langdon..... 19.25
Langdon..... 19.25
Langdon..... 19.25
Langdon..... 19.25
Langdon..... 19.25
Langdon..... 19.25
Langdon..... 19.25

Steel at Eastern mills..... 35.00
Old Rails, Ts..... 30.00

Scrap.

Wrought, 1/2 ton, from yard..... 19.50 to 20.00

Bar Iron from Store.

Common Iron:
1/2 to 1 in. round and square..... 1.75 to 1.80

Refined Iron:
1/2 to 1 in. round and square..... 1.90 to 2.30

1/2 to 1 in. round and square..... 2.10 to 2.30

Rods, 1/2 to 1 in. round and square..... 2.30 to 2.50

and 1 to 2 in. round and square..... 2.50 to 2.75

"Burden's Best" Iron, base price..... 2.50

urden's "H. B. & S." Iron, base price..... 2.50

Norway Nail Rods..... 5.00

Sheet Iron from Store.

Common..... 3.00 to 3.50

Galvanized..... 3.50 to 4.00

Galvanized..... 3.50 to 4.00

Galvanized..... 3.50 to 4.00

Galvanized..... 3.50 to 4.00

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LEAD.—Duty: Pig, 5¢ to 10¢; Old Lead, 2¢ to 5¢; Pipe and Sheet, 3¢ to 5¢.

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Sheet..... 3¢ to 5¢
Pipe..... 3¢ to 5¢

IRON.—Duty: Pig, 5¢ to 10¢; Old Lead, 2¢ to 5¢; Pipe and Sheet, 3¢ to 5¢.

Pig..... 5¢ to 10¢
Sheet..... 3¢ to 5¢
Pipe..... 3¢ to 5¢

SPELTER.—Duty: Pigs, Bars and Plates, 1¢ to 5¢.

Pigs..... 1¢ to 5¢
Bars..... 1¢ to 5¢
Plates..... 1¢ to 5¢

ZINC.—Duty: Pig or Block, 1¢ to 5¢.

Pig or Block..... 1¢ to 5¢
Sheet..... 1¢ to 5¢
Zinc Tubing..... 1¢ to 5¢

STEEL.—Duty: Pig or Block, 1¢ to 5¢.

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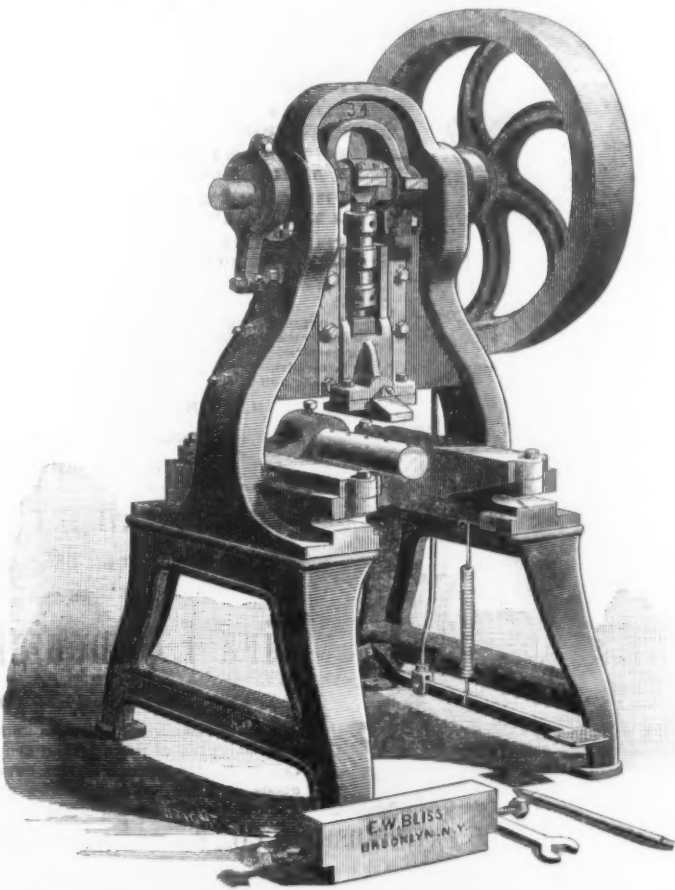
Black Paint, in oil..... 1¢ to 5¢

Blue, Prussian, fair to best..... 1¢ to 5¢

MECHANICAL.

New Power Press for Tinware.

Among the most useful of machines recently perfected for manufacturing tinware is a new power press, shown in the annexed engraving, and manufactured by the E. W. Bliss Co., of Brooklyn, N. Y. In small tin factories where there is work only for one or two presses, or where one press is required to do all the operations on pieced tinware or for general work in a tin factory, this press will be found of great value. It will receive cutting dies for all sizes up to 14 x 20 inches, "combination" for cutting and forming at one operation, also lettering, embossing and forming dies, and dies for



NEW POWER PRESS FOR TINWARE, BUILT BY THE E. W. BLISS CO., BROOKLYN, N. Y.

other purposes. The flat bolster and front of the press-bed can be removed whenever desired and a horn and force substituted, as shown in the engraving, by means of which the side seams can be set down on all kinds of round, square, oval and tapering work, or horn dies for other kinds of work can be used. When a frame bolster and slide plate are used curling or "wiring" dies can be conveniently manipulated for both straight and flaring work of all kinds up to size of 16-quart dish pans; either imitation wire can be made or the tin curled around genuine wire. It will thus be seen that the press is adapted for cutting out the body blanks, setting down the side seams, curling or wiring the upper edge of body, and cutting or forming the bottoms for round or oval work, with either straight or tapering sides such as cups, pails, pans, buckets, &c. It is also adapted for making a great variety of articles involving one or more of the above operations.

The presses all have hammered steel shafts, which are provided with the automatic steel clutch employed on all the power presses manufactured by the Bliss Co. for several years past, and claimed to be the best device yet invented for locking the wheel to the shaft. The shaft is also provided with a friction collar and strap, shown on the left of the press, to insure the stoppage of the slide at the highest point of the stroke. The slide has long V-shaped bearings and is provided with adjustable jibs to compensate for wear. The press is heavy and substantially built, the metal being distributed in such a manner as to secure the greatest strength where most needed. It is claimed by the manufacturers to be the most perfect press of its kind in the market, and is meeting with unqualified approval wherever it is used.

Freight-Train Speeds and Coal Consumption.

In discussing the subject of freight-train brakes at a recent meeting of the New England Railroad Club, reference was made to the influence of speed on the coal consumption on freight trains, Mr. Lander remarking that Professor Dudley made some experiments on the Lake Shore road, some years ago, with a train of 25 or 30 cars of stone ballast. His tests covered several weeks, and his deductions were that the most economical speed as regards fuel was 20 miles per hour. He found the fuel consumed was less at 20 miles per hour than at 10 miles an hour, and when he went beyond 20 miles an hour the consumption increased rapidly, below that slowly, and that 20 miles an hour was the most economical speed for fuel consumption. This may seem strange, but we must remember that in one case the engine is under steam twice as long as in the other case. As to the effect of speed on the cost of repairs, Mr. Goary stated that the expense per mile service on freight cars was less when run at 25 miles per hour than when run at 12.

Automatic Tapping Attachment.

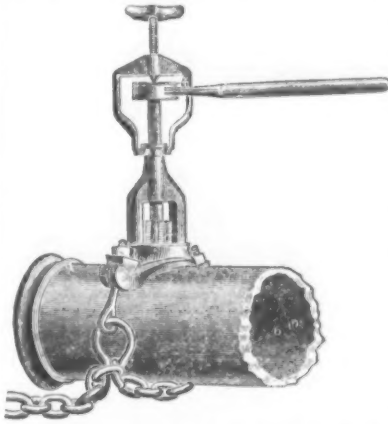
The accompanying cut represents a new automatic tapping attachment manufactured by the Delamater Iron Works, New York. It can be attached to any ordinary lathe or drill press, and will, it is claimed, tap a larger number of holes in a given time and with greater ease than any other device of its kind. The action of the machine is as follows: The shank is placed in the socket

of the drill press, and the bottom stop set so that the tap projects the depth that is necessary for it to enter the hole; the spindle is then started and the tap is pressed into the hole to be tapped. The tap will continue to go down until the top strikes the surface of the work, when it will cease turning. The spindle is then raised and a reverse motion is imparted to the tap, allowing it to be drawn out. It will thus be seen that the entire operation of tapping a hole with this attachment consists of pressing the spindle until the tap has reached the proper depth, and then raising the spindle until the tap is out, when another hole is brought in place and the operation is repeated.

The small shaft carrying the tap socket is driven by a five-jawed spring grip, the ten-

Dry Pipe Tapping Machine.

Walter S. Payne & Co., of Fostoria, Ohio, are putting on the market a new dry pipe tapping machine shown in the annexed cut. The saddle, which fits the main, is of malleable iron, and the body, which holds the tap and drill, is of bronze metal, and light and very strong. The long neck or upper part of machine makes a sleeve and guide for the drill shank. The feeder yoke hooks on to the top

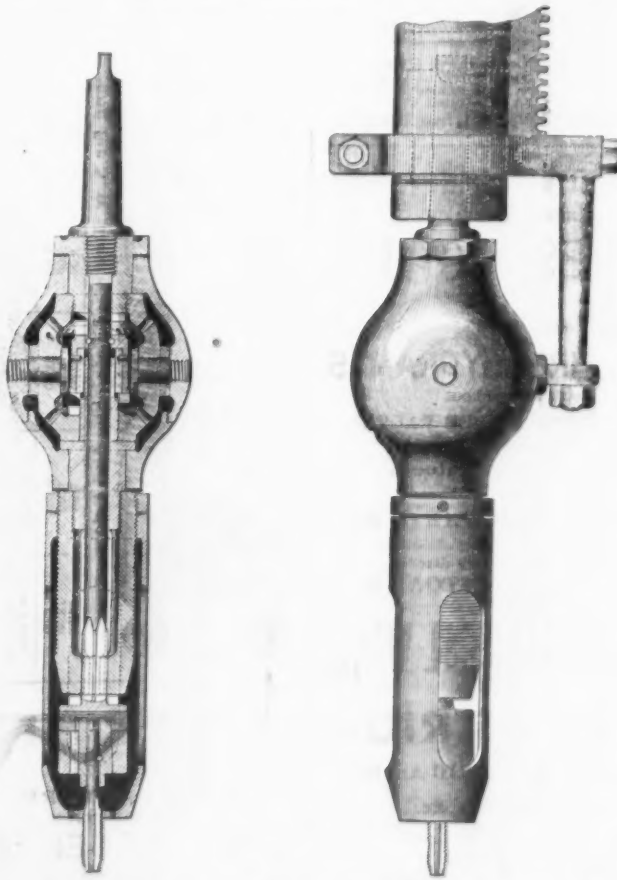


Dry Pipe Tapping Machine, Made by Walter S. Payne & Co., Fostoria, Ohio.

of the machine, and the drill is forced in by the feeder screw, and the drill and tap are worked with the ratchet. The saddles are made for all sizes of pipe, and screw on the lower end of the machine with a coarse thread. As soon as the hole is drilled through the pipe and the tap catches its thread the feeder yoke is unhooked from the machine and laid to one side, leaving full swing for the ratchet while tapping. The whole weight of machine, with one 6-inch saddle, chain, feeder yoke, ratchet, and 1-inch tap and drill, is 17 pounds; it can be easily carried in one hand. By ordering a proper length of chain and extra saddles the machine may be used on any size of pipe. The device, we understand, is meeting with a ready sale.

The Hammer Blow.

From the *National Car and Locomotive Builder* we find that the committee of the Master Mechanics' Association appointed to investigate the so-called hammer blow of locomotive driving-wheels have made very little progress in their work. At the first meeting of the committee, in Philadelphia, parties interested in the Shaw locomotive offered to bear the expense of constructing a machine to ascertain the variation and magnitude of the pressure on the rails due to driving-wheels being badly balanced. Mr. Shaw produced a sketch of a machine he thought would do the work. It was four wheels so set in proper framing that the driving-wheels of a locomotive could rest on the treads of these carrying-wheels. The latter were designed to revolve as the driving-wheels moved, so that the wheels of an engine could be revolved at a high speed while the engine itself remained stationary. The journals of the carrying-wheels were to rest on a hydraulic disk made to record the pressure. A sub-committee consisting of Mr. Thomas Shaw and Prof. P. H. Dudley was appointed to design an instrument that



THE RATHBUN TAPPING ATTACHMENT, MADE BY THE DELAMATER IRON WORKS, NEW YORK.

the sockets of any drill press or lathe, and the change can readily be made from one to the other.

As regards the speeds of working we are informed that in one hour the apparatus can bore 125 holes in brass, $\frac{3}{8}$ inch diameter, $\frac{3}{4}$ inch deep; 400 holes in brass, $\frac{3}{8}$ inch diameter, $\frac{3}{4}$ inch deep, and 200 holes in cast iron, $\frac{3}{8}$ inch diameter, $\frac{3}{4}$ inch deep. There is a certainty of all holes being tapped square and all studs set up by it standing perfectly square. For large work, where it may be desirable to drill, tap and insert the stud without moving the work, special sockets are made for holding the drill, the tap and the stud. The three operations may be performed by changing these sockets without moving the work to a separate machine.

would make the required tests, and they were instructed to have the hydraulic cylinders directly under the treads of the wheels and to have each carrying-wheel on a short independent axle. The sub-committee have now reported that it was impracticable to carry out the instructions they received, and here the matter rests.

George L. Oliver, an old Philadelphiaian and a director of the Cambria Iron Co., died in Atlantic City, 3d inst., in the 88th year of his age. He was born in England and came to this country when a young man. Fifty years ago he became a member of the firm of Wood, Oliver & Co. The deceased was president of a copper mining company on the coast of Lake Superior.

MANUFACTURING.

Iron and Steel.

The annual reunion of the members of the Amalgamated Association of Iron and Steel Workers was held at Beaver, Pa., on Saturday, the 5th inst. Fully 20,000 people were present.

There is talk of turning the Old Colony Shovel Works, at East Taunton, Mass., into a concern for rolling steel rails.

The Mosler Safe and Lock Co., Cincinnati, are running at full capacity, and have been forced to make large additions to their present plant. Plans and specifications are now out for a four-story addition to their works.

Turner, Vaughn & Taylor and the Falls River Co., Cuyahoga Falls, Ohio, have notified their employees that hereafter they would be paid by the hour.

The works of the Pennsylvania Bolt and Nut Co., at Lebanon, Pa., the largest of their kind in the country, were destroyed by fire on the 6th inst. Four large brick buildings were consumed, with all their contents, embracing a large amount of finished stock and valuable machinery. The loss is about \$150,000 and is covered by insurance. About 350 men are thrown out of work. The cause of the fire is unknown.

The Missouri Malleable Iron Co., of St. Louis, have the bids all in and the contract probably let for the addition to their foundry. The new structure will be 200 feet long by 70 wide. This occupancy of additional space will necessitate the putting in of another cupola for gray iron, the building of a second air furnace for malleable castings, and the making of provision for a new core-room, tramway, sheds, &c. Building operations will be begun at once and pushed vigorously. — *Age of Steel*.

Furnace B. of the Western Steel Co., at St. Louis, will blow in shortly.

The Freeman Wire Co., recently incorporated under the laws of Missouri by C. L. Freeman, president; T. W. Freeman, secretary and treasurer, and C. L. Butterfield, superintendent, with a paid capital of \$10,000, have opened an office at 400 North Main street, St. Louis. They will manufacture two and four point steel barb wire in cattle and hog, partly under patents controlled by them, and also as infringers of certain of the vested claims of the Worcester licensors. They will equip a factory for their business as soon as negotiations for a site and machinery, now in progress, are concluded. — *Age of Steel*.

Eagle Furnace (charcoal), the property of Curtiss & Co., at Roland Centre County, Pa., blew in on the 20th ult.

Mont Alto Furnace (charcoal), at Mont Alto, Pa., is being repaired and will blow in the present month.

The machinery in one of the two butt-weld departments of the new pipe mill of the Pittsburgh Tube Co. has been tested in an experimental way and found to work successfully. This department will be put in active operation at once, and the two lap-weld departments where the large size pipes are made will be ready for operation in about a month. The mill is one of the largest and most complete pipe mills in the country, being furnished with all the labor-saving appliances and the newest machinery yet introduced. It will give employment to some 300 men, and will have a capacity of 200 tons a day.

The Pittsburgh Locomotive Works began operations in their new foundry on Preble avenue, Allegheny, last week.

The product in all departments of the Pennsylvania Steel Co.'s Works, at Steelton, Pa., for the year ending May 30, shows a very large increase over last year.

At a convention of the nailers held in Pittsburgh on the 31st ult., and which was very largely attended, almost every factory in the West having a delegate present, it was unanimously voted to apply for readmission into the Amalgamated Association of Iron and Steel Workers, from which the nailers seceded a year ago.

Articles of incorporation of the Birmingham Iron Co., of Ashland, Wis., have been filed, the object being to do a general iron mining business. The incorporators are Geo. H. Hopper, H. F. Hugby, John Donahue, S. W. Tanner and F. W. French, and the capital stock is \$1,000,000.

John Mohr & Son, of Chicago, are constructing the ironwork for three water towers to be erected at different points in Nebraska. They are 12, 15 and 20 feet in diameter and 100 feet high each.

Ten tons of shafting are being made at the Lewiston Machine Co.'s works, Lewiston, Me., for Hutchins' box factory, which will soon be erected in Auburn.

George H. Taylor has retired from the management of the Sharon Iron Co.'s works, at Sharon, Pa., and has been succeeded by Frank H. Buhl, of Detroit. Extensive repairs and additions are being made to the plant.

The Pennsylvania Tube Works Co., at Pittsburgh, whose works are idle on account of a strike, as was noticed in these columns last week, are transferring their orders to Eastern firms. A prolonged struggle is looked for, as the officials are determined not to give in to the men.

The Edgar Thomson Steel Works, Pittsburgh, are at work on a large order for steel rails, to be delivered to the Mobile and Ohio Railroad at various points along their line. The order is one of the largest that the Edgar Thomson have booked this year.

P. L. Kimberly & Co., nail manufacturers of Sharon, Pa., signed the Mingo compromise scale last week.

Machinery.

Among the recent shipments of the Fitchburg (Mass.) Steam Engine Co. are a 125-horse-power engine to J. H. Horne & Sons, Lawrence; a 100-horse-power engine to the Electric Light Co., Stamford, Conn., and an 85-horse-power to Matthew Robson, Salem.

The Mason Machine Works, of Taunton, Mass., have received an order for four large passenger engines and four switchers from the Boston and Maine Railroad Co.

The Hartford (Conn.) Hammer Co., of which Mr. Samuel L. Way is president, have broken ground for a large shop on Suffield street, Hartford. The building will be of brick, 104 x 50 feet ground dimensions, and one story high. A forge shop and boiler and engine room will be attached to the main structure. It is expected that it will be ready for operation by the 1st of September.

The contract for the roll trains and machinery of the new Apollo Sheet Iron Works, Pittsburgh, Pa., was awarded to Messrs. Robinson, Rea & Co., of the same city.

The Valley Machine Co., of Easthampton, Mass., have supplied two new fire pumps, built from special patterns, to the Meyer Rubber Co. and the New Jersey Rubber Co., of New Brunswick, N. J.

The Lincoln Iron Works, of Rutland, Vt., under date of June 4, write us: "We ship to-day the first carload of machinery for the new marble mill of W. H. Evans & Son, of Knoxville, Tenn. It consists of a rubbing or polishing wheel, 11 feet in diameter and 4 inches thick, and the shafts and gearing to drive and carry the same. We are building two more of the same dimensions for them." When finished their mill will be one of the largest and most complete in the South for working and finishing marble.

Alfred Box & Co., Philadelphia, have just supplied seven of their improved radial drills to the Union Bridge Co. These drills are of uniform size, having each 5 foot reach. They are to be used in a gang, all being driven by one large shaft, with a clutch for each drill. It is designed by the use of them to drill simultaneously a full section of bridge. They are intended for use on the large Australia bridge, which the Union Bridge Co. recently secured. Messrs. Box & Co. are meeting with a very active demand for their improved radial drill of late. Of recent orders, in addition to the seven sent the bridge company, they have sold one extra large sized one, with 6-foot reach, to Wm. Wharton, Jr., & Co., Philadelphia, and one to Ernest C. Barth, Atlanta, Ga. They have also sold lately a large number of their hoists to the Union Bridge Co.

The North Star Iron Works Co., of Minneapolis, Minn., have recently completed a large sawmill in Montana, and are now making plans for one to go to Texas. The machinery that goes into these mills is for the most part new in design.

It is proposed to erect a new engine at the Spring Garden Works, Philadelphia, with a daily capacity of 20,000,000 gallons, and estimated to cost \$100,000. Also two new steel boilers at the Roxborough Works. Nearly \$170,000 will be appropriated for new cast iron water pipes for that city.

The Jarvis Engineering Co., of Boston, Mass., recently furnished a steam plant to the Manchester Gas Co., Manchester, N. H., consisting of a 60-horse-power Armstrong & Sims engine, tubular boiler with Jarvis setting to burn coke screenings, Korting injectors, National heaters. The system to be used is the Thomson-Houston.

The Cole Engine Co., Chicago, Ill., have been incorporated. Capital stock, \$500,000.

A 50-pound Beaudry upright power hammer has been placed in the carriage manufactory of M. E. Brown & Co., Syracuse, N. Y.

The Prospect Machine and Engine Co., Cleveland, Ohio, are at the present time erecting and starting ice and refrigerating plants at Cincinnati, Ohio, and Havana, Cuba, and have just started one at New Brunswick, N. J. Their engine business is also very encouraging. They have in process of construction a pair of Cummer automatic engines of 2596 horse power for the Lowell Carpet Co., Lowell, Mass.; one of 100 horse-power for the Dennison Paper Co., Mechanics Falls, Me.; one of 265 horse-power for the Paige Car Wheel Co., Cleveland, Ohio; one of the same power for the Johnson Chair Co., Chicago, and several of their Simplex automatic engines of 50 horse-power and under for Chicago and Cleveland parties. Among their recent shipments are a 449-horse-power engine to Wahl Bros., Chicago; one of 100 horse-power to the Derby Paper Mills, Birmingham, Conn., and one of 449 horse-power to the Nonantum Worsted Co., Newton, Mass.

Hardware.

Perkins Bros.' Tack Factory, in Bridgewater, Mass., have orders sufficient for the next four months. The concern has one order from Ohio for 25,000 pounds of tacks.

The Wright Wire Cloth Co., Palmer, Mass., have purchased the plant of the Palmer Wire Goods Co., and have put in an engine and boiler and added new looms. They will make the same line of goods as the old company, but with increased production. They have started up with a force of 15 men.

The Indian commissioners in this city have awarded supplies to the value of nearly \$2,500,000, including articles of hardware numbering over 1500. Robert Mandy, of this city, will furnish 1000 dozen axes at \$5.60, and 146 dozen hunters' axes at \$3.74. Parkhurst & Wilkinson, of Chicago, will furnish 200,000 bolts.

The wages of the men employed in the hoe department of the works of Hubbard & Co., at Beaver Falls, Pa., have been reduced 20 per cent. Over stock and scarcity of orders are the reasons assigned.

The Dayton Screw Works, Dayton, Ohio, that have been running three days each week for some time past, because of dull trade, have shut down for an indefinite period, discharging 50 men and 150 girls.

The Pratt & Whitney Co., Hartford, Conn., have bought the machinery, fixtures, stock of tools and business of the Hartford Tool Co. and will continue the manufacture and sale of their threading, turning, shaping,

cutting-off and boring tools, center reamers, dividers, straight-edges, &c., under the supervision of J. E. Woodbridge, late manager of that company, who has been for several years connected with the Pratt & Whitney Co. as contractor in their tap and die department.

Miscellaneous.

The Electric Lighting Co., of Rutland, Vt., have increased their capital stock from \$50,000 to \$50,000.

The central portion of the Loughlin Nail Works, at Martin's Ferry, W. Va., were destroyed by fire on the 7th inst. The building contained the boiler and engine and 120 machines.

One of the large boilers of the Rensselaer Rail Mill, a portion of the works of the Troy Steel and Iron Co., exploded on Monday, and several workmen were fatally injured. The boiler had been idle several months.

The following table exhibits in gross tons the total lake shipments of iron ore from the mines of the Marquette and Menominee ranges for the current season up to and including Wednesday, the 26th, together with the shipments from the same ports for the corresponding period of last year:

Name of port.	1885.	1886.
Marquette	98,214	37,323
Escanaba	178,581	105,059
L'Anse	1,785	1,785
St. Ignace	10,787	16,429
Total	289,367	160,596

Increase of shipments for the present season to date over the corresponding portion of last, 126,836 gross tons.—Marquette (Mich.) Mining Journal.

Messrs. Broderick & Bascome, of St. Louis, Mo., wire rope manufacturers, have purchased land with the object of enlarging their facilities.

On the 24th ult. the coke-workers in the Connellsville region made a demand upon the syndicate for an increase of wages in the various departments of labor equal to a 10 per cent. advance. This demand has been refused by the syndicate and a conference called for the 7th inst. Should the men insist on the advance a strike will be the result.

The business men of Martin's Ferry, Ohio, at a meeting held last week formed a permanent improvement board, with the following officers: James Kerr, president; John F. Miller, vice-president; O. Russell Wood, secretary, and H. W. Smith, treasurer. Various committees were appointed to gather up and present to the manufacturers desiring to locate in the natural gas belt the advantages of Martin's Ferry, and to offer substantial inducements to any parties desiring to locate there.

The Lead, Zinc and White Lead Co., of Madison, Wis., have filed articles of association with the Secretary of State, the capital stock being \$500,000. The object is to conduct a mining business, especially for lead and zinc. The incorporators are Wm. Ihno, J. H. Wheelock, Charles Wedelstedt and E. T. Wheelock.

It is expected that natural gas will be introduced into Toledo, Ohio, by September 1. It will come from Findlay, which is 40 miles distant.

An important meeting of wholesale harness manufacturers of the United States has been called, and will be held in Pittsburgh on the 22d inst. The object of the gathering is to form an association.

The cable on Tuesday brought the tidings from Florence, Italy, of the sudden death in that city of Col. Richard M. Hoe, of New York. Mr. Hoe had gone abroad for rest and pleasure in company with his wife and daughter, and was apparently in his usual good health when suddenly stricken down with heart disease. Mr. Hoe was the senior member of the firm of R. Hoe & Co. His name is inseparably connected with the development of the printing press in this country. His invention of the rotary or lightning press, and later of the web printing machine—the latter the joint production of Colonel Hoe and his partner, Mr. S. D. Tucker—made his name a familiar one throughout the civilized world. His death closely follows that of his brother, Mr. Robert Hoe, who died at his summer home in Tarrytown less than two years ago.

In January Mr. John M. Hartman, a well-known blast-furnace engineer, delivered a lecture on the blast furnace before the Franklin Institute in Philadelphia. That lecture has now been reprinted, and will be found an instructive, though hardly a popular, review of the work of the blast furnace and its irregularities. Mr. Hartman has a number of plates illustrating the distribution of stock and of the different zones in a furnace working under normal conditions and when scaffolded. The lecture is, of course, sketchy, but its perusal will be of interest to many, since Mr. Hartman does not by any means always follow the path trodden by all previous writers.

Chief Justice Dorson, in Montreal last week, in his charge to the Grand Jury referred to the increase in the number of cases of fraudulent misappropriation of funds by persons occupying positions of trust which have lately come to light in both the United States and Canada, urging that they have sadly demonstrated the insufficiency of the international provisions concerning the extradition of criminals who seek to evade the laws of their country by removing to an adjoining country. The almost certainty of escaping punishment in this way has a most demoralizing effect upon the rising population of both countries, while it disturbs the confidential relations of business men, and conduces to the ruin of individuals and of useful public institutions. It should, therefore, Judge Dorson said, "be the aim of every well wisher of his country to use his influence in pressing upon the authorities the importance of using every effort to secure a broad and liberal extradition treaty, which will include those numerous criminal frauds which have become so numerous of late."

Exports.

The following list embraces the Exports of Hardware, Machinery, Iron, Metals, &c., from the port of New York, for the week ending June 8, 1886:

Dutch West Indies.		Quinn.	Val.	Tin crans, bxs.	Quinn.	Val.
Mf. iron, pkgs.	2	820	Firearms, cs.	2	31	
Saws, case.	1	2	Agateware, cs.	2	31	
Bremen.		Corunna.		Lisbon.		
Hdw., pkgs.	30	560	Nails, keg.	1	5	
Iron drums.	131	850	Clocks, pkgs.	69	815	
Clocks, cs.	16	567	Mf. iron, pkgs.	12	165	
Mf. iron, pkgs.	41	936	Hdw., cs.	22	107	
S. rollers, cs.	2	32	Sew. ma., case.	1	7	
Ag. imp. pkgs.	1	100	Cartridges, cs.	1	14	
Mach'y, pkgs.	2	50	Nails, kegs.	31	100	
Hamburg.		Nova Scotia.		Brazil.		
Mach'y, pkgs.	24	2,590	Hdw., cs.	2	117	
Copper, cks.	6	690	Mf. iron, pkgs.	1	4	
Hdw., pkgs.	64	948	Hdw., pkgs.	384	2,678	
Clocks, pkgs.	85	3,853	Tinware, pkgs.	2	40	
Wringers, cs.	2	68	Mf. iron, pkgs.	130	2,185	
Arms, case.	1	200	Clocks, pkgs.	108	2,317	
Ag. imp. pkgs.	111	3,956	Revolvers, case	1	183	
Copper, bars.	2	30	Cutlery, cs.	4	509	
Mf. iron, pkgs.	3	35	Mach'y, pkgs.	26	1,788	
Copenhagen.		Helsinki.		Drontheim.		
Hdw., case.	1	60	Clocks, bxs.	11	140	
Ag. imp. pkgs.	1	17	Sew. ma., cs.	17	384	
Helsinki.		Christiania.		Rotterdam.		
Clocks, bxs.	11	140	Sew. ma., cs.	34	606	
Sew. ma., cs.	17	384	Valves, case.	1	131	
Amsterdam.		Gent.		Antwerp.		
Hdw., cs.	10	186	Ag. imp. pkgs.	6	138	
Ag. imp. pkgs.	14	134	Hdw., cs.	5	17	
Sew. ma., cs.	272	7,195	Copper, casks	2	300	
Liverpool.		London.		Aberdeen.		
Mf. steel, cs.	6	75	Hdw., cs.	84	2,832	
Clocks, pkgs.	292	9,055	Tin tags, cs.	3	350	
Ag. imp. pkgs.	242	3,650	Sew. ma., cs.	707	30,838	
Mach'y, pkgs.	62	5,329	Pumps, pkgs.	9	320	
Life-saving gun, pkgs.	6	290	Cartridges, cs.	15	351	
Tinfol., cs.	2	75	Wringers, cs.	7	110	
Guns, cs.	6	653	Mach'y, pkgs.	42	4,023	
Hdw., pkgs.	27	1,040	Mf. iron, pkgs.	13	370	
Cop. ore, bags	8447	61,400	Freezers, cs.	8	301	
Shears, case.	1	100	Ag. imp. pkgs.	205	5,300	
Solder, case.	1	75	Clocks, pkgs.	148	2,640	
Sew. ma., cs.	680	14,040	Guns, cs.	3	474	
Firearms, cs.	2	963	Acomouth.			
Cutlery, cs.	6	75	Hdw., cs.	5	19	
Glasgow.		Colombia.		United States of		
Ag. imp. pkgs.	35	1,396	Mf. iron, pkgs.	678	5,108	
Wire gds., case	1	32	Hdw., pkgs.	115	2,881	
Rifles, case.	1	167	Sew. ma., cs.	68	1,561	
Sew. ma., cs.	400	4,105	Cutlery, cs.	31	511	
Hdw., pkgs.	149	1,256	Saws, case.	3	351	
Cartridges, cs.	2	104	Windmills, cs.	1	162	
Water-wheels.	2	300	Br. gds., cs.	5	383	
Clocks, pkgs.	18	292	Saws, case.	38	510	
Hdw., cs.	0	163	Tinware, cs.	11	943	
Hull.		Palermo.		Genoa.		
Clocks, cs.	7	96	Clocks, cs.	4	175	
Ag. imp. pkgs.	1	46	Sew. ma., cs.	76	1,304	
Pumps, pkgs.	8	120	Mach'y, pkgs.	41	1,034	
Hdw., cs.	15	161	Mf. iron, pkgs.	2	17	
Gibraltar.		Naples.		Porto Rico.		
Clocks, cs.	2	155	Clocks, cs.	17	686	
Copper, cks.	4	460	Sew. ma., cs.	76	1,304	
Cop. ore, sks.	749	4,000	Hdw., cs.	41	1,034	
Sew. ma., cs.	431	8,723	Mf. iron, pkgs.	2	17	
Case.	1	30	Clocks, cs.	17	686	
Ag. imp. pkgs.	161	7,687	Hdw., cs.	17	686	
Copper, bars.	3	37	Sew. ma., cs.	76	1,304	
Clocks, cs.	3	300	Mach'y, pkgs.	41	1,034	
British Honduras.		Barcelon.		British Possessions		
Clocks, cs.	3	56	Mf. iron, pkgs.	1	3	
Pumps, pkgs.	2	24	Clocks, cs.	17	686	
British Possessions		Africa.		Haiti.		
S. rollers, cs.	130	2,228	Mf. iron, pkgs.	100	400	
Hdw., pkgs.	776	12,776	Nails, kegs.	100	243	
Ag. imp. pkgs.	459	9,181	Velocipedes.	1	3	
Mf. iron, pkgs.	318	5,367	Iron, pkgs.	105	754	
Pumps, pkgs.	7	441	Molasses, gals.	20	12	
Wringers, cs.	48	800	Hdw., pkgs.	7	109	
Saws, cs.	18	566	Nails, kegs.	11	27	
Cutlery, cs.	2	60	Pumps.	2	47	
Air guns, case	1	100	Bells.	3	91	
Cartridges, cs.	2	21	B. goods, case	1	28	
W. mills, pkgs.	10	331	Mf. iron, pkgs.	1	43	
Clocks, pkgs.	332	9,680	Hdw., cs.	10	71	
Mach'y, pkgs.	43	4,235				
Bars, pcs.	144	400				
Sew. ma., cs.	185	2,931				
Wash. mchs.	9	50				
Guns, cs.	6	619				

The brigantine Georgia has been chartered to load at Wilmington, N. C., with lumber and hardware for the new Welsh colony at Port Madeyn, in Patagonia. The colony numbers 700 souls.

Holmesburg, Pa., is about to secure an ample water supply by erecting a stand-pipe, to be supplied by a compound duplex pumping engine with a capacity of 1,000,000 gallons per day, and an auxiliary engine of 500,000 gallons per day capacity.

The new Public Library Building in Boston will be fire-proof and have a frontage of 224 feet. The grand lobby will be open to the roof, with balconies on each of the upper stories, the ceiling supported by granite columns.

Herr Most, the anarchist, finds that drilling in the blacksmith shop at Sing Sing is less entertaining than drilling rioters for street warfare.

The Phipps Conservatory, in Pittsburgh, will have rafters of iron and ridged-iron plates for the roof.

Some interesting figures have been put together showing the enormous extent to which the Panama Canal Co. have been a purchaser of machinery. There are at the

present moment either at work en route or in course of construction no less than 200 European locomotives of 19,200 horse-power 60 American locomotives of 4800 horse-power, 116 excavators, 28 large tugs, 144 steam pumps, 97 traction engines, and a vast number of other steam appliances, amounting in all to 57,400 horse-power.

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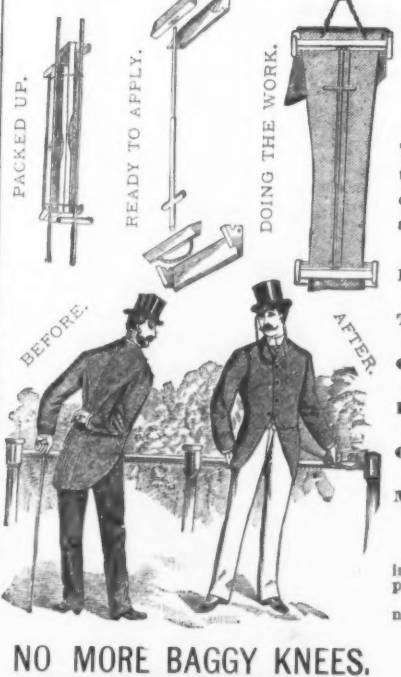
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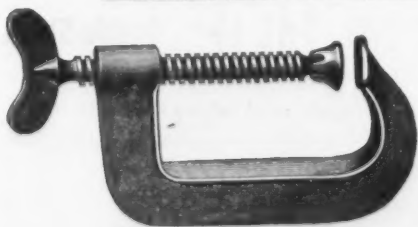
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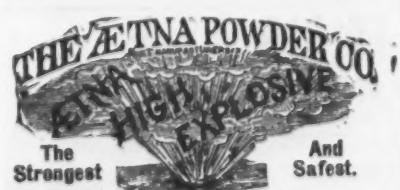
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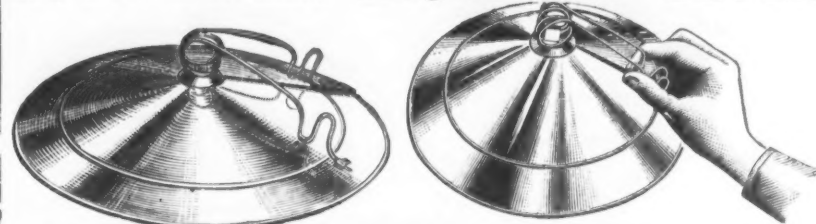
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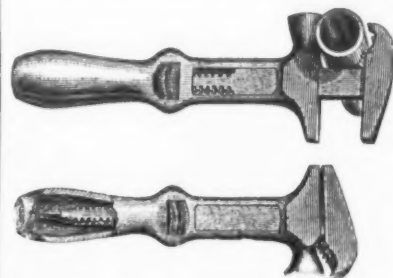
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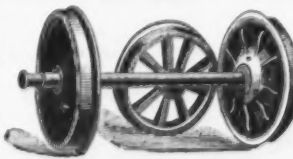
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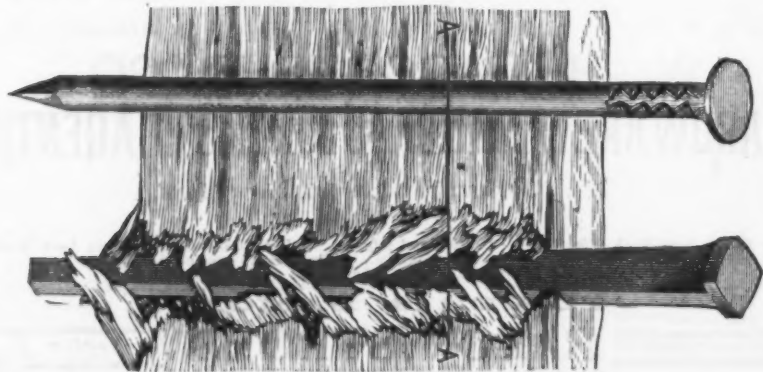


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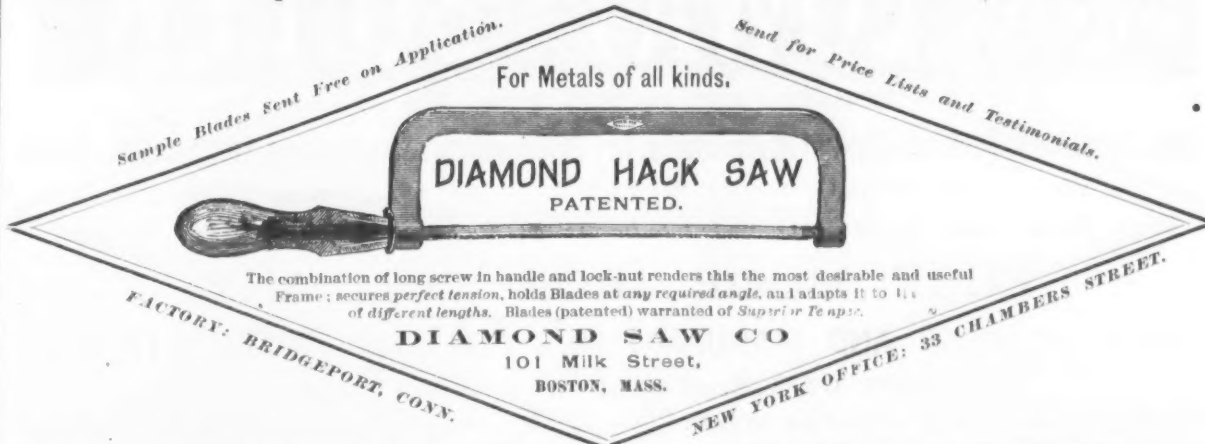
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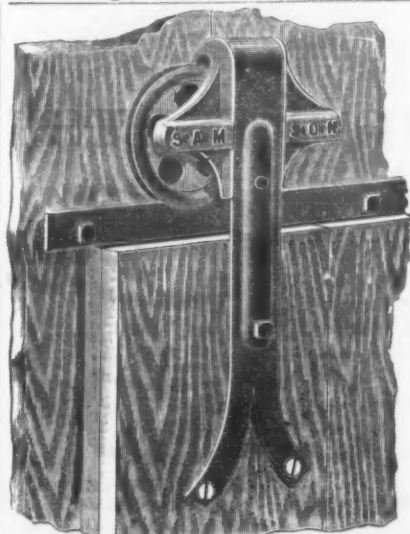
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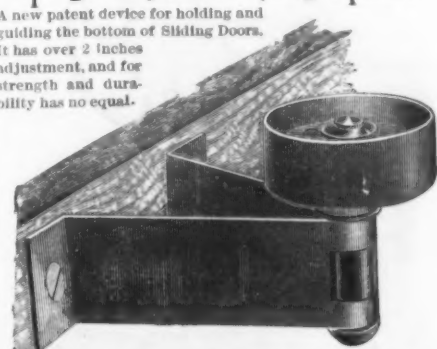
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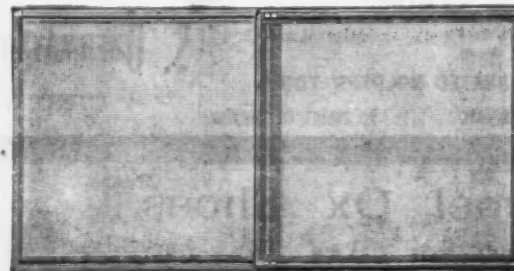
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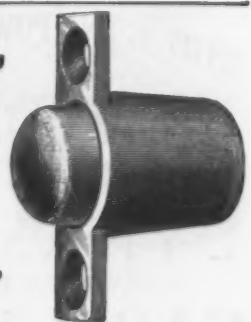
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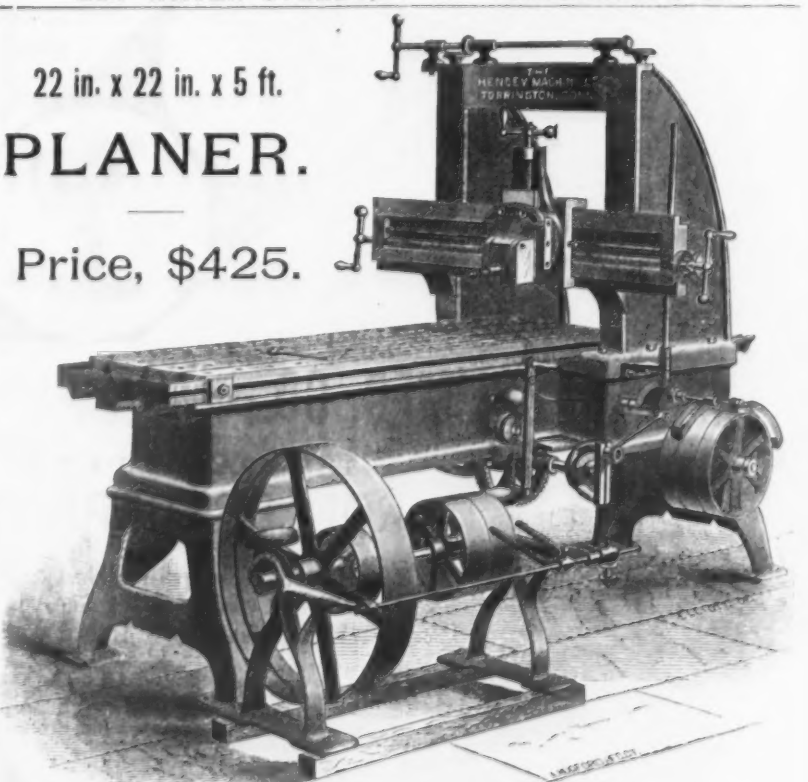
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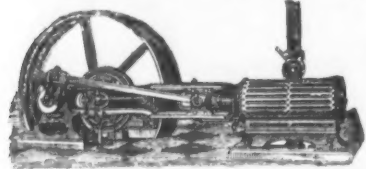
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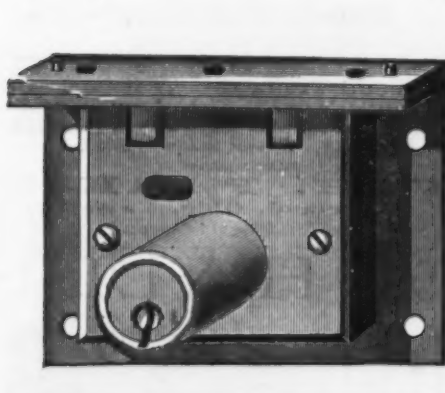
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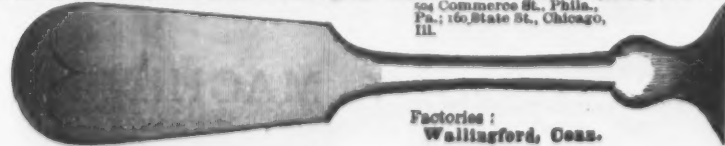
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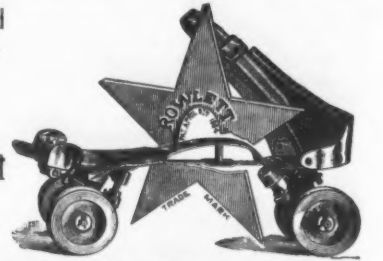
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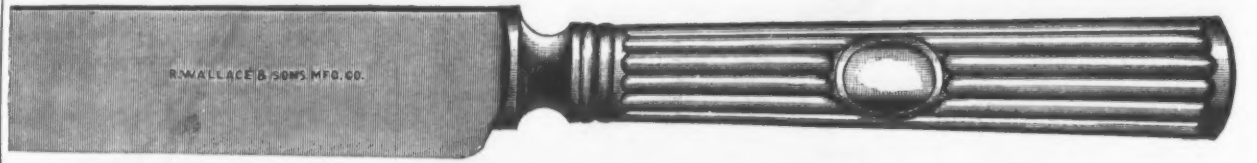
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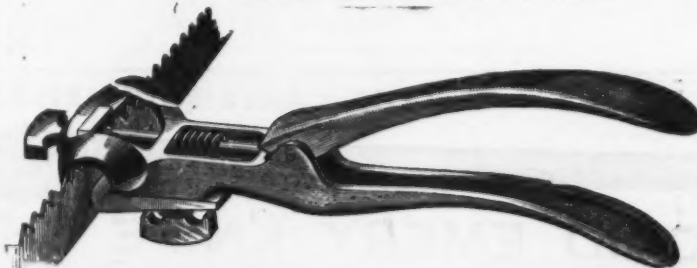
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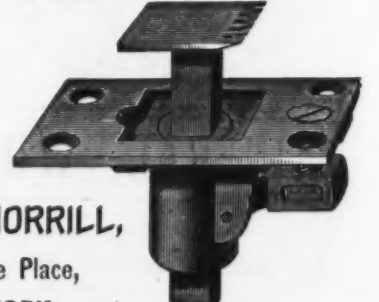
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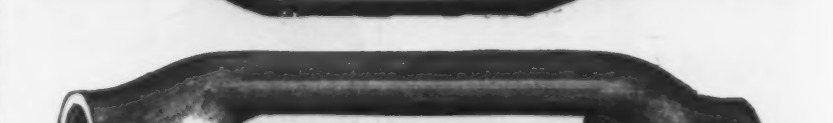
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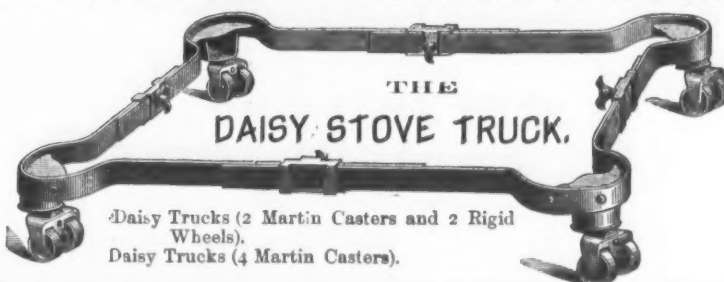
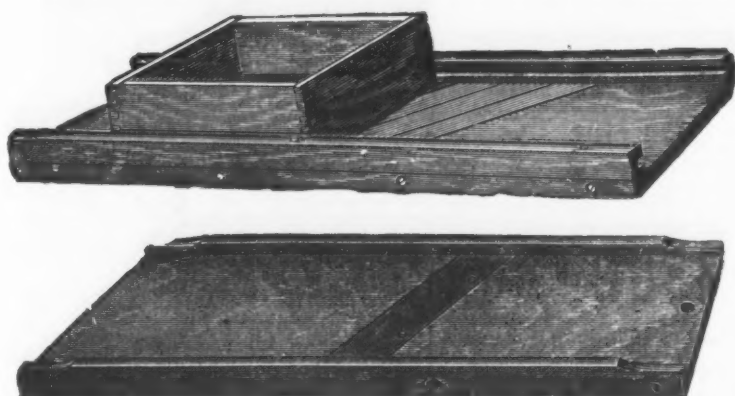
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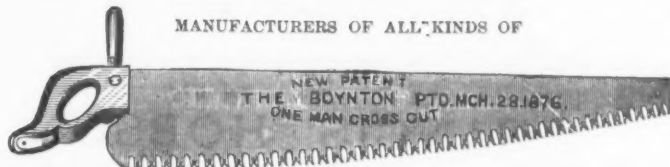


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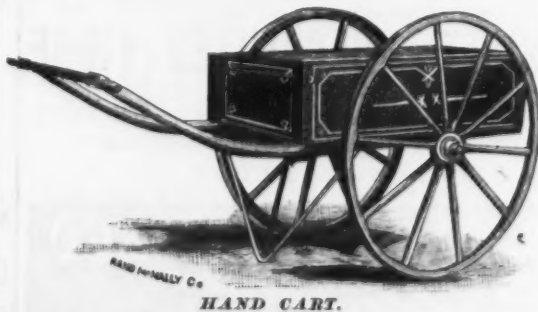
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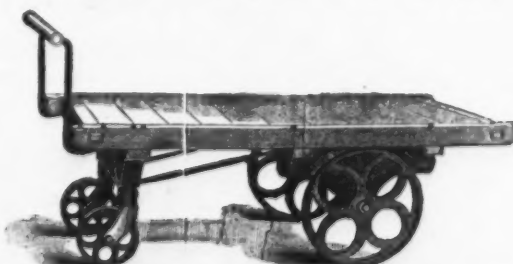
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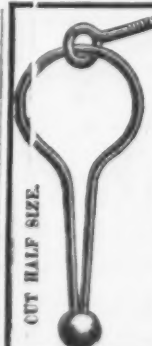
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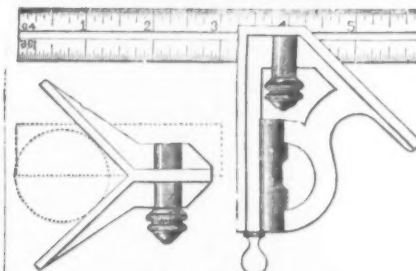
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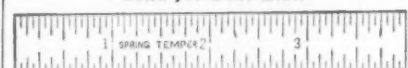
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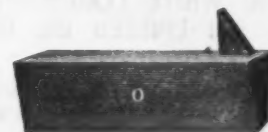
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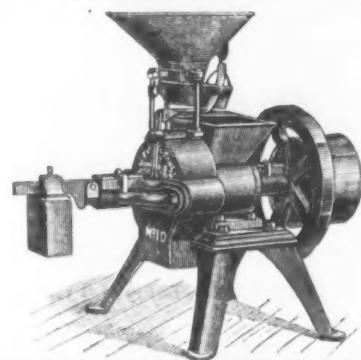
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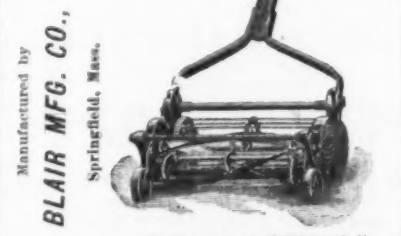
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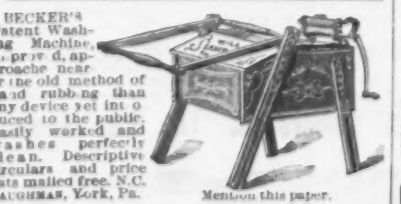
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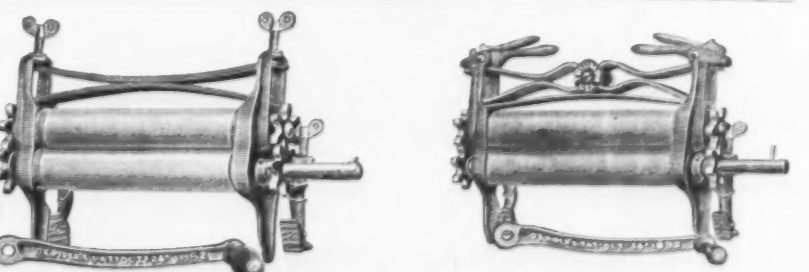


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In addition to the above Wringers we make the most durable Friction Wringer on the market, called "The Leader," which we make with or without Pressure Screws on top. All these Wringers are made of Galvanized Iron. The Shafts are of Steel, and Black Enamelled Handles, impervious to Alkali or Water. Warranted the Easiest Turning Wringers made, and to Wring Dry.

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Buck Wright's, 100 lb., \$10.00
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Apple Parers.
Round Apple Parer, \$5.00 net
White Mountain, 5.00
Lots of 10 to 25 dozen, special prices.

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Hunt's Kentucky and Yankee, 70 lb. net, \$7.00
William Mann, 70 lb. net, 7.00
Favorite 70 lb. net, 6.00
Beveled Axes, 15 lb. net, add 50c
Double Bit Axes, 15 lb. net, 13.00

Angers and Auger Bits.—New List January 7, 1886.
Snell's Augers and Bits, 60 lb. net, \$6.00
New Haven Copper Company, 60 lb. net, 6.00
Benjamin Pierce Auger Bits, 60 lb. net, 6.00
Jennings Auger Bits, new list, Jan. 1, 1886, 6.00
Cook's Auger Bits and Augers, 60 lb. net, 6.00
Snell's Ship Augers, 60 lb. net, 6.00
Watrous Ship Augers, 60 lb. net, 6.00
Bonney's Pat. Bit, Augers, 60 lb. net, 6.00
Stearns' Pat. Bit, Augers, 60 lb. net, 6.00

Balances.
Light and Common, \$5.00

Bells.
Bever Bros. Mfg. Co. Light Hand Bells, 75 lb. net, \$7.50
Light Hand Bells, 75 lb. net, 7.50
Swiss Pattern Hand Bells, 75 lb. net, 7.50
Connolly's Bell, 75 lb. net, 7.50
Gt. Western & Kentucky Cow, new list, 75 lb. net, 7.50

Boring Machines.
Upright, without Augers, \$15.50
Anular, without Augers, \$15.50

Bolts.—Eastern Carriage Bolt, new list, June 10, 1886.
Phila. Carriage Bolt, new list, 75 lb. net, \$7.50
Stainer, Wrought Nut, 75 lb. net, 7.50

Braces.—Barner's Improved, 50 lb. net, \$5.00
Barber's Old Style, 50 lb. net, 5.00
Backus, Polished, 50 lb. net, 5.00
Barnes, Nickel, 50 lb. net, 5.00
Spofford, 50 lb. net, 5.00
American Bar, 50 lb. net, 5.00
Amidon Improved, 50 lb. net, 5.00
Amidon Corner Brace, 50 lb. net, 5.00

Butts.
Cast Joint, Narrow, 70 lb. net, \$7.00
Cast Joint, Broad, 70 lb. net, 7.00
Cast Joint, Japanese, 70 lb. net, 7.00
Cast Joint, Broad, 70 lb. net, 7.00
Cast Joint, Japanese, 70 lb. net, 7.00
Cast Joint, Broad, 70 lb. net, 7.00
Cast Joint, Japanese, 70 lb. net, 7.00

Blind Butts.
Clark, 75 lb. net, \$7.50
Shepard, 75 lb. net, 7.50
Lull & Porter, 75 lb. net, 7.50
Huffer's, 75 lb. net, 7.50

Chains.—German Halter and Coll. list, June 10, 1886.
Galvanized Pump, 50 lb. net, \$5.00
Best Proof Coll Chain—English, 50 lb. net, 5.00

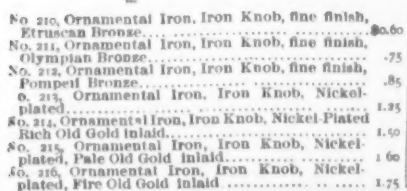
Chisels.—Socket Framing, 75 lb. net, \$7.50
Socket Framing, 75 lb. net, 7.50
Butcher's, 75 lb. net, 7.50

Coffee Mills.—Box and Side, new list, Jan. 1, 1886.
Zentgraf, 75 lb. net, \$7.50

Cutlery.—Walden Pocket, new list, Jan. 1, 1886.
Pennsylvania Knife Co., new list, Jan. 1, 1886.
Landers, Fry & Clark, J. Russell & Co., Lamson & Goodnow Mfg. Co. and Meriden Cutlery Co., Manufacturers' prices.

Door Hangers.—Cronk Bar Door Hangers, No. 4, \$12.00; No. 5, \$14.00; No. 6, \$16.00; No. 7, \$18.00; No. 8, \$20.00; No. 9, \$22.00; No. 10, \$24.00; No. 11, \$26.00; No. 12, \$28.00; No. 13, \$30.00; No. 14, \$32.00; No. 15, \$34.00; No. 16, \$36.00; No. 17, \$38.00; No. 18, \$40.00; No. 19, \$42.00; No. 20, \$44.00; No. 21, \$46.00; No. 22, \$48.00; No. 23, \$50.00; No. 24, \$52.00; No. 25, \$54.00; No. 26, \$56.00; No. 27, \$58.00; No. 28, \$60.00; No. 29, \$62.00; No. 30, \$64.00; No. 31, \$66.00; No. 32, \$68.00; No. 33, \$70.00; No. 34, \$72.00; No. 35, \$74.00; No. 36, \$76.00; No. 37, \$78.00; No. 38, \$80.00; No. 39, \$82.00; No. 40, \$84.00; No. 41, \$86.00; No. 42, \$88.00; No. 43, \$90.00; No. 44, \$92.00; No. 45, \$94.00; No. 46, \$96.00; No. 47, \$98.00; No. 48, \$100.00; No. 49, \$102.00; No. 50, \$104.00; No. 51, \$106.00; No. 52, \$108.00; No. 53, \$110.00; No. 54, \$112.00; No. 55, \$114.00; No. 56, \$116.00; No. 57, \$118.00; No. 58, \$120.00; No. 59, \$122.00; No. 60, \$124.00; 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No. 638, \$1280.00; No. 639, \$1282.00; No. 640, \$1284.00; No. 641, \$1286.00; No. 642, \$1288.00; No. 643, \$1290.00; No. 644, \$1292.00; No. 645, \$1294.00; No. 646, \$1296.00; No. 647, \$1298.00; No. 648, \$1300.00; No. 649, \$1302.00; No. 650, \$1304.00; No. 651, \$1306.00; No. 652, \$1308.00; No. 653, \$1310.00; No. 654, \$1312.00; No. 655, \$1314.00; No. 656, \$1316.00; No. 657, \$1318.00; No. 658, \$1320.00; No. 659, \$1322.00; No. 660, \$1324.00; No. 661, \$1326.00; No. 662, \$1328.00; No. 663, \$1330.00; No. 664, \$1332.00; No. 665, \$1334.00; No. 666, \$1336.00; No. 667, \$1338.00; No. 668, \$1340.00; No. 669, \$1342.00; No. 670, \$1344.00; No. 671, \$1346.00; No. 672, \$1348.00; No. 673, \$1350.00; No. 674, \$1352.00; No. 675, \$1354.00; No. 676, \$1356.00; No. 677, \$1358.00; No. 678, \$1360.00; No. 679, \$1362.00; No. 680, \$1364.00; No. 681, \$1366.00; No. 682, \$1368.00; No. 683, \$1370.00; No. 684, \$1372.00; No. 685, \$1374.

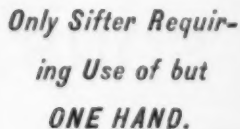
BROUGHTON'S
BURGLAR-PROOF SASH LOCKS.
(Patented Oct. 7th, 1879.)
FOR NET BOTTOM PRICES SEE PAGE AD
IN IRON AGE, APRIL 15th.



Special net prices to be found in *Iron Age* whenever changes occur.
The only manufacturers in the United States who quote bottom prices to all dealers without favoring any class.
Fine Gray Iron Castings of every description, also Real Bronze and Brass Castings, made to order at very low prices; Pattern Making, Japanning, Bronzing, Tinning, &c.
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We do no underhand business, but quote alike to all for quantities less than \$1000.
Our terms are strictly 15 days, f. o. b. Reading, no charge for cases or cartage.

Acknowledged the VERY BEST.

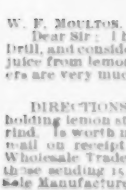
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SIDNEY SHEPARD & CO., Buffalo, N. Y.
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30-INCH DOUBLE DRUM SANDER.
We also make Sanders 24, 36 and 42 inches wide.



BURLINGTON, VT., Sept. 5, 1888.
used and am selling your Lem-
the best article for extracting t
that I have ever seen. My custo
leased with them.
W. B. McKILLIP, Grocer.

BURLINGTON, Vt., Dec. 30, 1884.
 MR. W. F. MOULTON.
 Dear Sir: I am using one of your Lemon Drills and am
 very much pleased with it. I think it an article
 every housekeeper will appreciate when tried.

DIRECTIONS.—Place the end of lemon and drill out, working the Drill with rotating motion of the hand, holding lemon still. Get more than one squeezer, extracting most of the juices from the lemon. Wash the Lemon Squeezers in cold water. Wash the Lemon Drills in cold water. Wash the Lemon Rinds with warm water between three and four times and sells for 10 cents each. Send no money on receipt of 6 cents in 2 cent stamps, or \$1.00 per dozen. Large discount to the trade. Ask your Wholesale Trade and Jobbers for them. **Agents Wanted.** They sell at Sight. Sent by mail only to Agents and Dealers in stamps. All orders or correspondence must be sent to the Patentee and Sole Manufacturer,
W. F. MOULTON, Burlington, Vt.

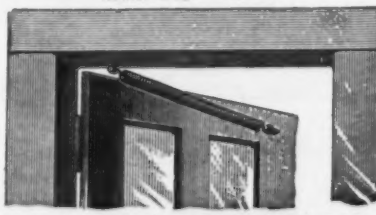
MRS. C. H. MORRISON,

Please mention this paper.



As a guarantee of the superior quality of Screw Tang Files over all others, for any that are unsatisfactory as to temper, &c., we will give in exchange two for each one that is returned to us. One Handle will last a lifetime in constant use, making it the cheapest Handle in the world. Cost to cents each.

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FOR LIGHT AND HEAVY DOORS.
Indorsed by the Trade.



Made in four sizes of the best Crucible Steel Wire. The smaller sizes have no equal for screen and other light doors.

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Working Machines for Pattern use, &c. *Illustrated
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POST'S PATENT IMPROVED
EUREKA SAP SPOUTS,
THE BEST IN THE WORLD.

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Reported by Bigelow & Douse.

Ammunition.

Cartridges.—

Rim Fire Cartridges, .22 cal.	dis 40 c
Rim Fire Military Cartridges, .22 cal.	dis 16 c
cen. Fire Cartridges, Pistol and Rifle, .22 cal.	dis 40 c
Cent. Fire Cartridges, Pistol and Rifle, .22 cal.	dis 30 c
Blank Cartridges, except 22 and 32 cal.,	dis 10 c
ditional 10 c over above discounts.	
Blank Cartridges, 22 cal.	\$1.50
Blank Cartridges, 32 cal.	3.00
Primed Shells and Bullets.	dis 25 c
R. B. Caps, Round Ball, Swaged.	\$1.50
R. B. Caps, Conical Ball, Swaged.	1.75

Powders.—

Berdan Primers, all sizes, and B. L. Caps (for Sturtevant Shells).	90 c
or other Primers, all sizes.	\$1.10

Shells.—

Paper Shot Shells, 1st and 2d or S. G. qual.	dis 25 c
Paper Shot Shells, Club, River, Climax.	dis 40 c
Paper Shot Shells, Star Brand.	dis 50 c
Brass Shot Shells, first quality.	dis 40 c
Brass Shot Shells, Club, River and Climax.	dis 45 c

Wads.—

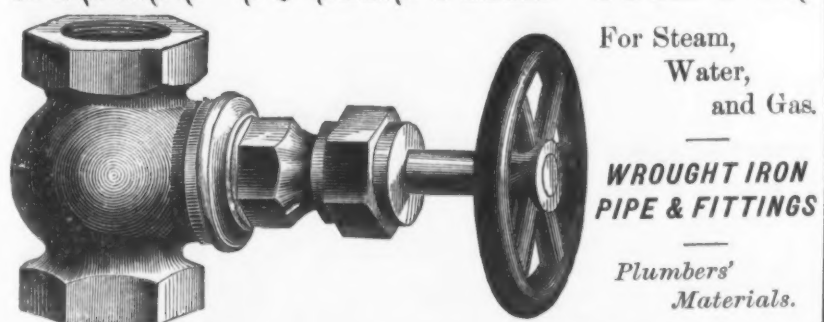
U. M. C. & W. R. A. B. E., 11 up.	\$2.00
U. M. C. & W. R. A. B. E., 9410.	2.30
U. M. C. & W. R. A. B. E., 748.	3.00
U. M. C. & W. R. A. B. E., 11 up.	3.00
U. M. C. & W. R. A. B. E., 748.	4.00

Chenille & Vase.....	10	20	30	40	dis 25 %
Chenille.....	\$3.50	4.50	5.50	6.50	dis 25 %
Eagle, Fisher & Norris, No. 60, \$1.75; 0, \$2.75; 1, \$2.75; 2, \$3.75; 3, \$4.75; 4, \$1.50; 5, \$2.50; 6, \$3.50; 7, \$4.50; 8, \$7.25; 9, \$8.25.....						dis 25 %
100 lb and over 10¢ lb.....						dis 30 %
Angers & Bits.						
1/2 Homeddie's Ship Anger.....						dis 15 %
Jennings's Bits.....						dis 35 %
Cook's Bits.....						dis 50 & 10 %
Crislow's Bits.....						dis 60 & 10 & 5 %
1/2 Homeddie's Bits.....						dis 10 %
Jennings's Pattern.....						dis 50 & 10 & 5 %
Awning Fixtures.						
Dearborn's No. 1.....					¢ dos \$10.50	
Dearborn's Patent Bits.....					dis 10.50	dis 25 %
Dearborn's No. 3.....					¢ dos 13.50	
Axes.						
Blue Jackets.....					¢ dos \$7.00	
Francis Axe Co.....					¢ dos 7.00	
Dearborn's Axes.....					¢ dos 6.50	
Romer Brok, Polished Steel.....					¢ dos 8.00	
Axle Grease.						
Belknap's tin boxes.....					¢ dos \$2.00	
Belknap's 5 lb pails.....					¢ dos 7.00	
Belknap's 10 lb pails.....					¢ dos 8.50	
Belknap's 50 lb cans.....					¢ dos 10	
Ax Handles.						
Oak Extra, 31 in., No. A.....					¢ dos \$2.50	
Oak Extra, 31 in., No. B.....					¢ dos 2.00	
Oak Extra, 31 in., No. C.....					¢ dos 2.00	
Oak Extra, 34 in., No. B.....					¢ dos 2.00	
Oak Extra, 34 in., No. C.....					¢ dos 1.40	
Balances—Chadlin's.....					dis 40 & 10 %	
Barn Door Rail.						
Cast Angle (for Anti-Friction Hangers).....					¢ ft. 2¢	
Cast Half Round.....					¢ ft. 3¢, 4¢, 5¢, 6¢, 7¢, 8¢, 9¢	
Cast Round.....					¢ ft. 3¢, 3½¢, 4¢, 4½¢, 5¢, 5½¢, 6¢, 6½¢, 7¢, 7½¢, 8¢, 8½¢	
Bit Cans.						
Hendry's Japanned.....					dis 40 & 10 %	
Hendry's Brass.....					dis 35 & 10 %	
Blind Fasts.						
No. 6 Fasts.....					¢ Cents 6.00	
Sh-d's.....					¢ Cents 6.00	
Blind Hinges—Mail Hook, 3 holes.....					¢ Cents 7.00	
Blind Hinges—Tackle.....					dis 40 %	
Carriage.						
Com. Jan. June 10, 1884.....					dis 75 & 10 %	
Belmonte Engine, 1st October, 1884.....					dis 75 %	
Common, 1st February 28, 1883.....					dis 65 & 10 %	
Serax—Refined.....					¢ 10¢	
Sewing Machines.						
Single Needle.....					\$5.50 list	
Single Angle, each.....					6.75 list & 10 %	
Traces.						
Barber's.....					dis 50 %	
Spofford's.....					dis 50 & 10 %	
Brackets.						
Rich Bros. Bronzed Shelf.....					dis 50 & 10 %	
Rich Bros. Store Shelf.....					dis 40 & 10 %	
Bright Wire Goods.						

Regular List.....	ds 80 80	
Unions—Union Fast Joint.....	ds 60&10 10	
Unions—Union Fast Joint.....	ds 60&10 10	
Union Japanese Accorn.....	ds 70&10 10	
Union Silvered Accorn.....	ds 70&10 10	
Union Spiral Spring.....	ds 40 40	
Wrought Brass.....	ds 75&10 10	
Marriage Belts—Eagle Norway.....	ds 75 75	
Common, new List.....	ds 75&10 10	
Wards		
Watson's make Horse & Curry.....	ds 10 10	Rev. List.
Watson's Cotton.....	ds 10 10	ds 10 10, Aug. 1883.
Carpet Sweepers		
Welcome Rubber Roll.....	ds 119 70	
Welcome Cog Wheel.....	ds 17 00	
Wasters—Bed and Table		
Chain		
Coll 5-16.....	ds 8 8c	
Coll 14.....	ds 8 8c	
Coll 8-16.....	ds 8 8c	
Coll 14.....	ds 8 8c	
Coll 7-16.....	ds 4 4c	
Coll 14.....	ds 4 4c	
Bulk—White, Carpenter's.....	ds 9 9c	
Blue, Carpenter's.....	ds 9 9c	
Rayons.....	ds 12 12	
Bucks—Peck, Stow & Wilcox.....	ds 70&10 10	
Chucks.....	ds 40 40	
Chucks' Chisels.....	ds 40 40	
Galv Hods—Galv'd, New List.....	ds 10&10 10	
Galvanned, New List.....	ds 10&10 10	
Bucks, Brass		
Blackening.....	ds 55&10 10	
Globe.....	ds 55&10 10	
Galv Bibbs.....	ds 55&10 10	
Compression, Eastern Mfg. Co.		
To Screw.....	ds 2 50	3 50
To Solder.....	ds 50 50	50 50
Office Mills—New List.....	ds 45&10 10	
Upper Rivets.....	ds 50&10 10	
Ordance		
Janila, usual trade ds 1 1/2 lb B.....	ds 13 13	
Janila, usual trade ds 1 1/2 lb B.....	ds 13 13	
New Wire.....	ds 2 10 10	
30 ft. No. 6 Wire, with snap.....	ds 80 80	
30 ft. No. 6 Wire, with snap.....	ds 40 40	
40 ft. No. 6 Wire, with snap.....	ds 4 25	
40 ft. No. 6 Wire, with snap.....	ds 4 25	
50 ft. No. 4 Wire, with toggle.....	ds 4 75	
50 ft. No. 4 Wire, with snap.....	ds 5 00	
50 ft. No. 4 Wire, with snap.....	ds 5 00	

[illegible][illegible]

McNab & Harlin Mfg. Co., MANUFACTURERS OF BRASS COCKS AND VALVES



For Steam,
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Plates 1 1/4 inch thick to No. 14.
CAPACITY: 30 feet long,
70 inches wide.

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AND
CHARCOAL BLOOMS.

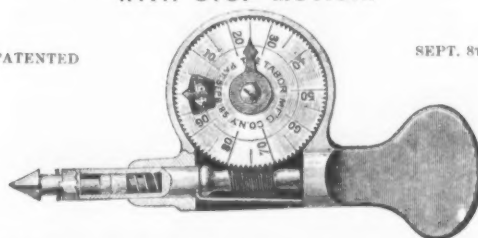
Locomotive, Fire Box, Flange and Shell
Iron; Plate for Bridges and Girders; Tank
and Stack Iron; Boat Plate and Iron for
Wrought Pipe; Plate Iron for Fire and
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THE TABOR REVOLUTION COUNTER.

WITH STOP MOTION.

PATENTED

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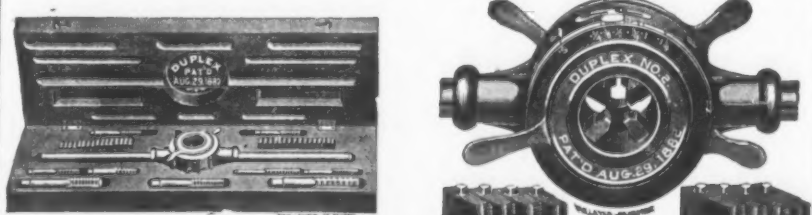


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HALLOWELL, MAINE.

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PAT. APR. 29, 1884.
IMPROVED BY M.M. BARTLETT.
Improvement Patented April 28, 1885.

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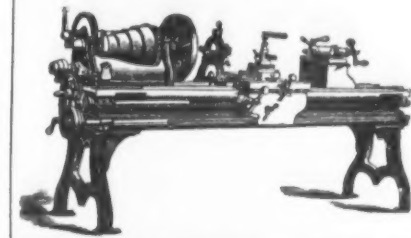
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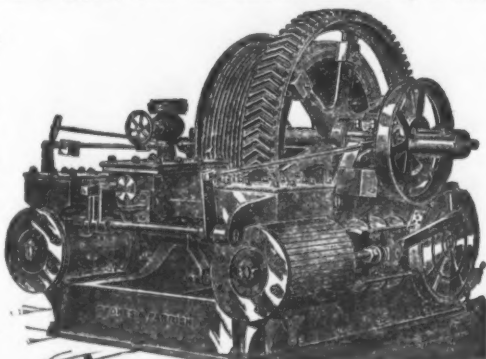
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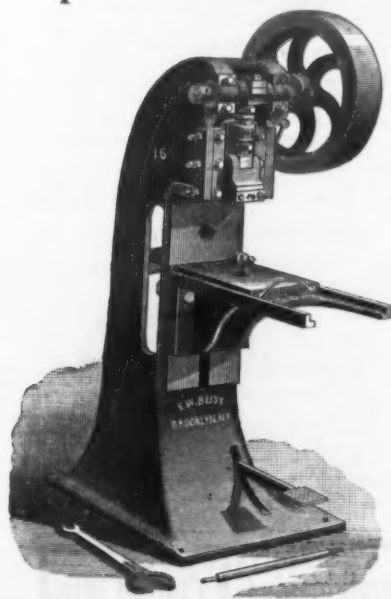
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DOUBLE
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HAND AND POWER
Circular Shears.

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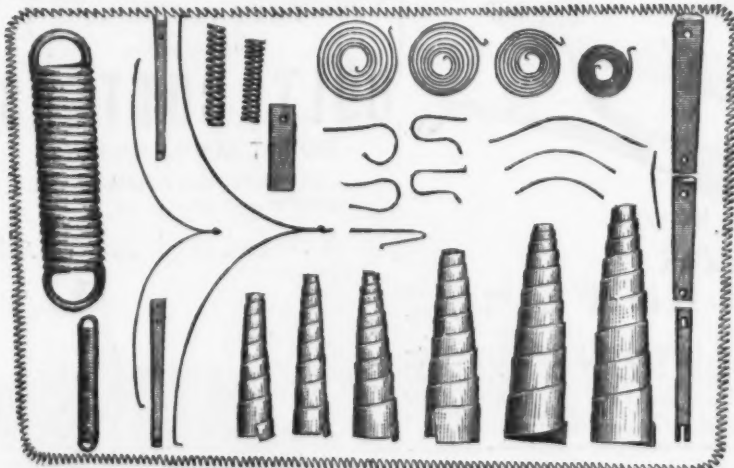
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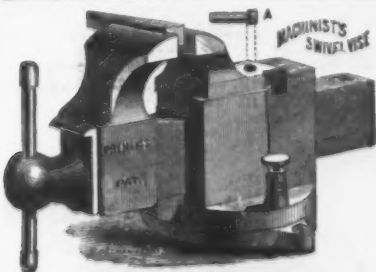
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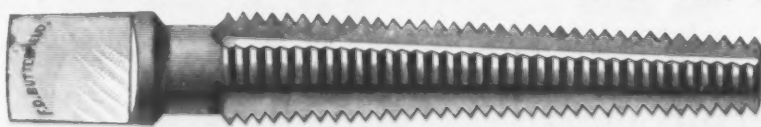
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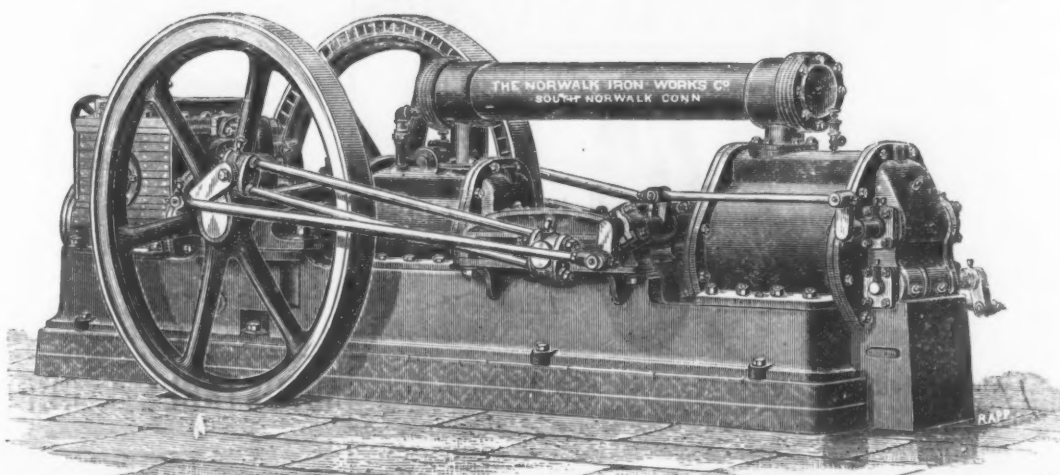
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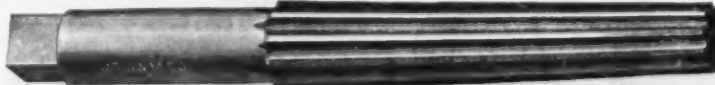
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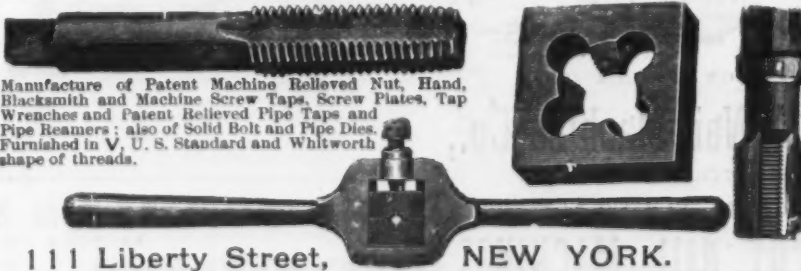
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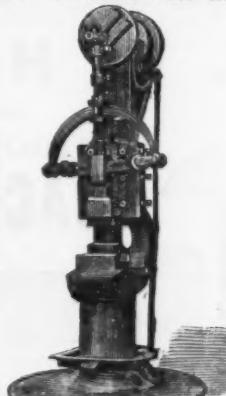
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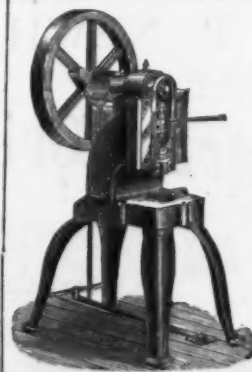
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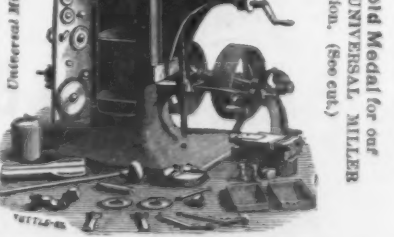
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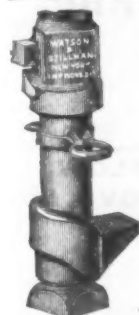
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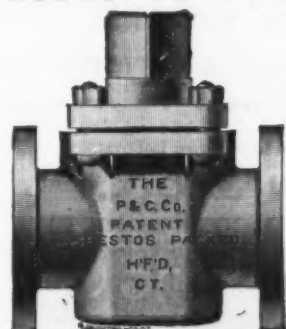
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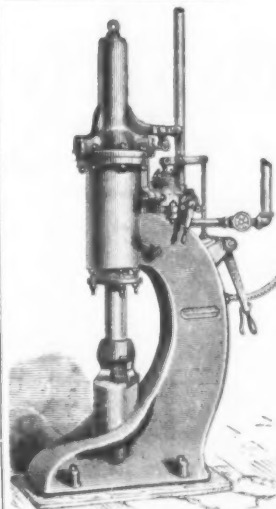
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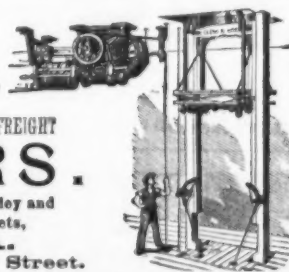
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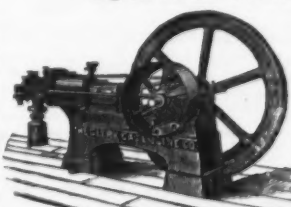
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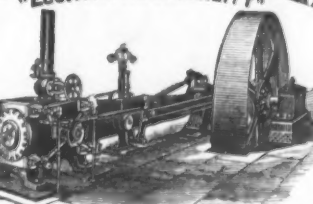
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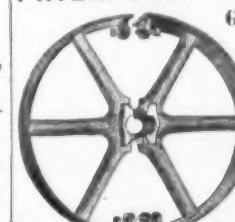
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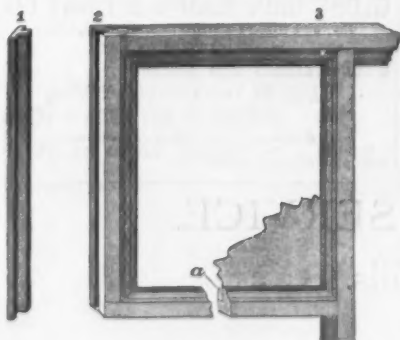
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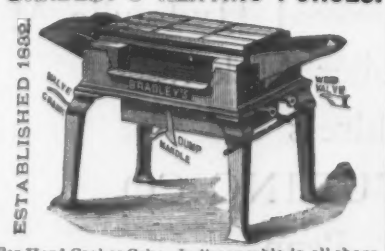
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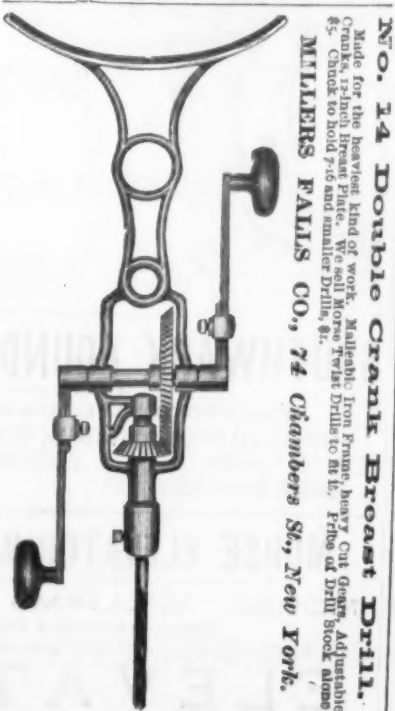
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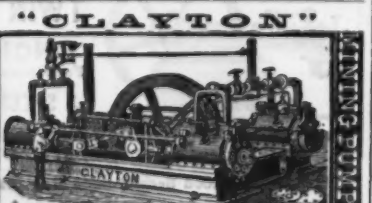
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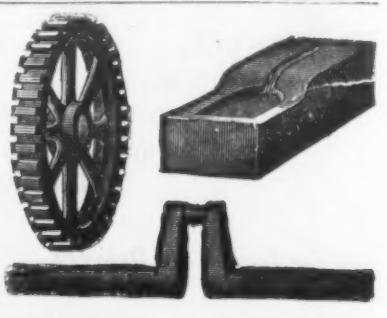
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